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Issue 15

90p

ATARI
USERS MAGAZINE







KANGA

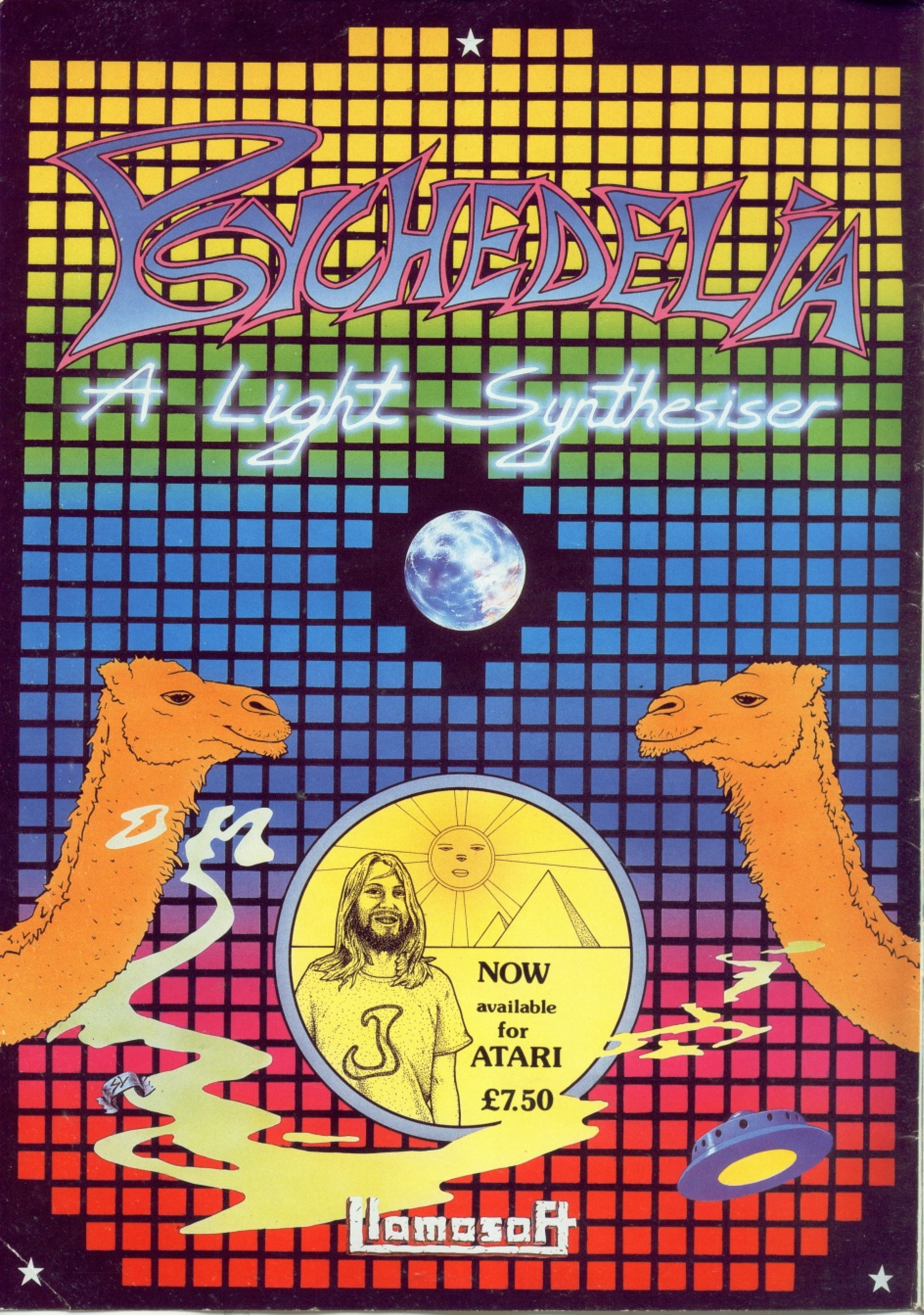
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May/June 1985

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Page 6 is a user's magazine and relies entirely on readers' support in submitting articles and programs. The aim is to explore Atari computing through the exchange of information and knowledge and whilst we cannot, unfortunately, pay for articles published we hope that you will gain satisfaction from seeing your work published and in turn we hope that you will learn from articles submitted by other readers. All published material is eligible for awards in the Annual Readers Poll and may receive additional Editorial awards as announced from time to time in the magazine.

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Copy date for the next issue is 20th May 1985

Editorial

Some of the euphoria of Atari's new machines is now dying and more realistic targets being set. I doubt if all the things announced at the Las Vegas CES will come into being but most will and Atari will be a strong force once again. The most important thing they must do is to deliver the products on schedule. In the States Atari are taking some hard knocks from competitors who are vociferously saying that ST's don't exist or have problems or will not be out on schedule. All these remarks are being made out of fear by competitors with inferior or overpriced machines but the world listens to rumours and Atari must be careful that any action or inaction on their part does not give credence to those seeking to maintain a market share by 'rubbishing' better products. In this country Sir Clive Sinclair has been the most vociferous in his attacks - he probably has the most to loose - and has been quoted as saying that the ST will not appear this year (perhaps he knows of another manufacturer whose 16-bit machine was a year late?) and that the QL is superior. In response I cannot resist printing a quote attributed to Jack Tramiel. "The ST is to the QL what the motor car is to the C5"!

Atari must get these machines onto the market as promised. I hope that by the time you read this, a few ST's will be around and by the next issue will be in the high street shops. If not the competitors will say 'I told you so' and the public will listen.

Last issue's cover was a nice idea that lost something in the processing but that's the way it goes! The entire image, except the words USER MAGAZINE which were too fine to digitise, was done on an Artron 2000 graphics computer. A lot more could have been achieved but time was short (and expensive!) and, although the screen image was superb, it didn't quite translate to print. Never mind, just wait till I get my ST with GemDraw. I might be able to prove yet again that an Atari is capable of matching the dedicated systems. Perhaps I should wait for Atari's 32-bit JAX? Perhaps not, $5000 is a bit expensive for a magazine cover!

Issue 14 of PAGE 6 could have been the last but fear not - we live on! The shake out of the computer industry last year meant that several companies went into liquidation or "no longer exist" among them Channel 8 Software, C.S. Software, Microspot, Home Entertainment Ltd., Stack Computers and Micro Research Ltd. They all owe us money. Then along came this tempting offer from Database Publications who were looking for an Editor for The Atari User. I thanked them kindly for the thought and started work on this issue. Having come this far, why give it up when I know that many of you can't wait for the next issue of PAGE 6. Thank you all for the encouragement.

Les Ellingham

News

Been into W.H. Smith lately? I don't blame you, but it will probably be worth a look this week to find THE ATARI USER, a new nationally distributed Atari only magazine published by Database Publications every month. Cover price is £1 with a 12 month subscription at £12. Overseas subscriptions should also be available. If your local newsagent does not stock it, you can ask him to order it for you. Watch out also for other Atari promotions from Database.

W. E. Electronics whose products were reviewed last issue (FOUR ADD-ONS) now have a true 64k RAM expansion for the 600XL which will run all XL software including the few available titles that switch out the Operating System. Price is £71.95.

Atari have recently re-organised their European distribution, warehousing and adminstration by centralising operations in Rotterdam. The move is in preparation for the European launch of the ST and XE range in mid April and is designed to achieve maximum economy in handling volume sales to the European and U.K. markets. Future trade deliveries in the U.K. will be met through a computerised call-off procedure linking factory production to the Rotterdam warehouse. All part of Jack Tramiel's plan to "bring Atari computers to the masses not the classes".

Silica Shop have recently set up Silica Distribution Ltd to handle trade distribution of Atari and Atari-related products to retailers nationwide. They will handle only Atari and aim to canvas up to 5000 trade outlets in the U.K. to encourage the stocking of Atari products. If your local retailer does not stock Atari hardware or software tell him to get in touch with Geoff Helm or Adrian Quinn on 01 309 1111. There *is* a vast amount of Atari software available and your local retailer *can* get it - if you insist.

Received for review:

The following items were recently received but too late for full review.

THE PAY-OFF a 48k disk based text adventure from Atari at only £9.99. Set in New Jersey it looks like a 'Mike Hammer' style trudge around the city streets only you are not the detective, just a small guy who owes the big guys money. It says on the pack, "no instructions, no help, you're on your own".

MY ATARI XL AND ME a book aimed at 'children and total beginners'. Written by an older beginner it starts at the very beginning and aims to allow users from 6 years upwards to begin to understand the computer. Published by Duckworth Publishing at £2.95.

Readers write

ENGLISH SOFTWARE APOLOGY

Dear Les,

Any chance of pointing out in your next issue that FORBIDDEN FOREST which was reviewed as being really awful in issue 14 is NOT from English Software but is published by U.S. GOLD in the U.K.

I would hate to think that this game will undeservedly give ENGLISH SOFTWARE a bad name!!

Philip Morris,
English Software.

°° *Oops, sorry. That is obviously why it is not as good as Jet Boot Jack! Perhaps all U.S. GOLD titles are 'really awful' and that is why they never send any out for review!!*

TOUCH TABLET ADVICE

Dear Page 6,

I thought that you might like to know of an undocumented feature of the Atari Artist cartridge used with the Touch Tablet, to allow pictures to be saved in Micropainter format.

The method is to press the INSERT key whilst the picture is on screen and the picture will be saved with the filename PICTURE. Be sure to have a disk ready as there is no prompt. Once saved the picture can be loaded into a Basic program with any of the published picture loaders.

Mike Power,
Manchester

°° *Many thanks. This is one of those little bits of information that I thought everybody knew but apparently not as I have had several letters recently asking if this can be done. One thing to watch is that all pictures will be saved with the filename PICTURE so it is important to use option E of DOS to rename the file before saving another. You can also use this in reverse. Take any 62 sector format picture and rename it PICTURE, go to draw mode and press the CLEAR key and the picture will load in and can then be worked on as usual.*

TOO EASY!

Dear Les,

I would like to register a complaint about how easy some of Atari's games are. For example I bought the official PENGO a while ago and it was so easy that by the next day I could reach over 300,000 with just two lives on the hardest level. Even though the game is almost the same as the arcade version graphics wise, I still think it was a waste of money.

Paulo Fragapane,
Bristol

°° *I haven't tried PENGO but I wish I could find some easy games! Can you imagine how difficult it is to write reviews when you can't even get off the first screen!!*

GO TO GERMANY

Dear Page 6,

I am a a British civilian living in Germany and purchased an 800XL here last year. Having found the manual totally useless, I decided to wait until a visit to the U.K. to purchase some decent books.

I stayed in Manchester which is by no means a small town and was totally amazed at the lack of Atari literature and software available. The 800XL is very popular in Germany, second only to the Commodore 64 according to German magazines, and both specialist computer shops and departmental stores are full of Atari literature and software. German computer magazines tend to have many more articles, tips and listings for the Atari than their U.K. counterparts.

I spent many weeks deciding whether to buy an 800XL or a Commodore 64 and I am convinced I made the right choice but wonder what owners in the U.K. feel?

Malcolm Pearce,
W.Germany.

°° *This is still the biggest problem Atari face in the U.K. They have always had the best machines so the fact that the new range is even better will not automatically gain them the recognition they deserve. Unless and until all retailers start keeping a good range of Atari software and supporting material Atari have very little chance of getting anywhere near the C64, BBC or Spectrum let alone catching them. This is an area that Atari and their distributors MUST give priority to otherwise all the promises will remain unfulfilled.*

MISSING MEMORY

Dear PAGE 6,

Can you please tell me why so much memory is lost with a 64k RAM module on a 600XL. Only 3k is lost to the O.S., screen display and Basic on a 16k machine. Now I lose 16k to the O.S, 8k to Basic and 3k to the screen and other 'bits and bobs'. Even the Atari Helpline cannot answer this. Can you tell me why?

Michael Phillips,
S.Wales

°° *Any 8-bit machine (which all the existing Ataris are) can only access 64k total memory which must include the Operating System and language as well as RAM. The memory on all models is made up as follows: The first 1791 bytes are used by the Operating System, up to the 48k boundary is RAM (if installed) and the final 16k is the Operating System. The basic cartridge always occupies the area from 40k to 48k. On a 16k machine RAM is installed only up to the 16k boundary but the top 16k of Operating System is also there as is BASIC which still occupies the same area. If you like, your 16k machine is really a 40k machine so when you upgrade to 64k you only get an extra 24k which is why you feel that you are 'losing' more. Originally Atari called their 48k RAM machines '48k' despite the fact that total memory was 64k but then Commodore started calling their machines '64k' and Atari lost sales. The XL machines are called 64k for commercial reasons and although you might think you have been cheated they do in fact have more 'user-RAM' than the Commodore 64!*



ONE OF THESE COULD BE YOURS

HOW?



By writing an article or sending a program to PAGE 6

Over the next five issues we will be giving away an AtariWriter cartridge to the author of the best article received and a Paint! cartridge to the author of the best program submitted. All contributions received will be re-considered prior to publication of each issue so that if you do not receive the award for a particular issue, your article or program will still be in the running for the next issue. In addition to this all articles or programs published will still be eligible for awards in the annual Readers Poll so it really is worth writing an article or sending in a program.

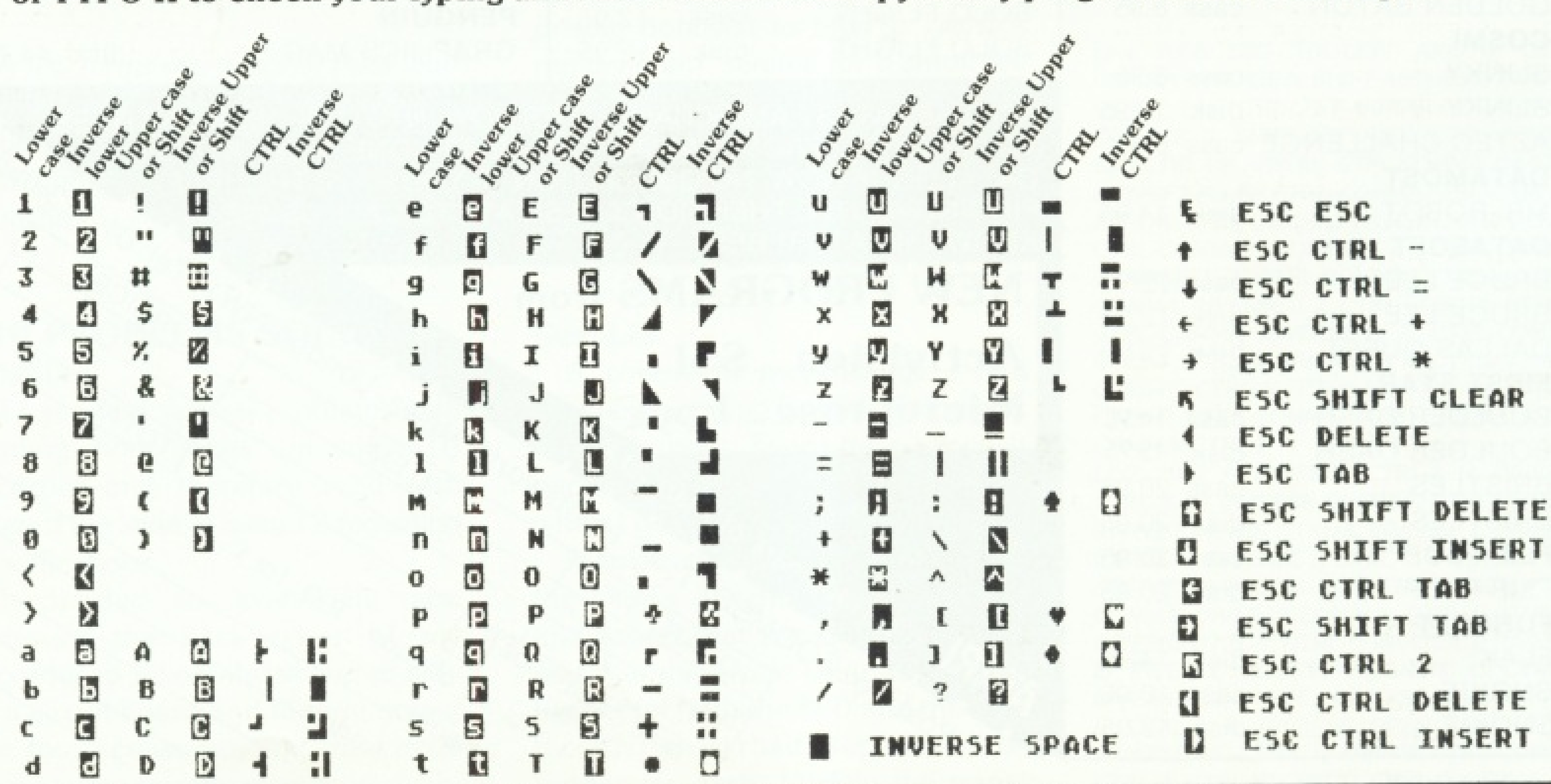
Articles may be on any subject of interest to Atari users and should be of at least one magazine page length. Diagrams, charts, illustrations or even photgraphs(!) may be included if you wish. Programs can be for any memory size and may be games, utilities or more serious programs provided they are of general interest. If possible please submit articles and programs on a DOS 2 disk (which will be returned or replaced by a disk from the PAGE 6 library). Any DOS 2 compatible word processor may be used. If you do not have a disk drive please use cassette but ensure that TWO copies are recorded, one of which should use LIST "C:". Hard copy listings of programs are not required but documentation explaining how to use the program should be included. Typewritten or handwritten articles are still welcome if you cannot manage disk or cassette and will be given equal consideration. Written program listings will not however be accepted.

Let's see your articles and programs. Best of luck!

To start the ball rolling the first award of an AtariWriter cartridge goes to Mark Hutchinson for his (epic!) A-Z guide for beginners in Atari Basic.

LISTING CONVENTIONS - READ BEFORE TYPING

The program listings in PAGE 6 are prepared to match exactly what you see on the screen. The following chart shows all of the characters used as they would appear in a listing. CONTROL characters and Inverse tend to join together in listings so care should be taken over these. Use TYPO or TYPO II to check your typing and ALWAYS save a copy of any program before running it.



TYPO II

AUTO DELETE

Add these program lines to TYPO II from issue 14 and you can delete TYPO II from your listing automatically. Your program can then be SAVEd or CSAVEd without going through the proceedure of LISTing to tape or disk.

First change lines 32080 and 32090 to

```
NX 32080 IF LINE$="END" THEN 32230
JN 32090 POSITION 2,10:? "CONT":B=VAL(LIN
   E$):POSITION 1,3:? " ";
```

Now add the following lines

```
PO 32230 TYPO=32000
NQ 32240 POSITION 2,2:? "K"
RH 32250 FOR DEL=TYPO-10 TO TYPO+150 STEP
   10
DK 32260 ? DEL:NEXT DEL:? "POKE 842,12:?
   CHR$(125):CONT"
VK 32270 POSITION 0,0:POKE 842,13:STOP
JF 32280 IF TYPO=32000 THEN TYPO=TYPO+150
   :GOTO 32240
```

When you have finished typing a listing and the prompt 'Type a program line' is on the screen type the word END and TYPO II will be deleted. Just SAVE or CSAVE your program as normal.

The Wanderer



by Stephen Pedler

Maze games have always been popular puzzles, both before and since the advent of personal computers. However, the graphics capability of computers means that we can now travel through a maze as though we were actually inside it-the 3D maze game. 'The Wanderer' is just such a maze.

TYPING IT IN

This is straightforward, but notice that there are several groups of very similar lines contained in the program. You can save yourself some typing time by using the Atari's editing facilities to duplicate the first line of a group and the making changes as appropriate.

PLAYING THE GAME

Brief instructions are summarised in the program itself, but are amplified here.

On running the program, you are first presented with a reminder of the instructions. Pressing the START button then shows you the maze from a bird's-eye view complete with your starting position and that of the exit. Note that the exit and start positions change each time you play a new game, but that the maze itself is constant.

Pressing start again puts you into the maze. You move through the maze using the joystick (up = North, right = East, down = South and left = West). The number of moves you have taken is displayed at the bottom of the screen, as is the direction you are facing. If you wish to look in another direction, simply press the corresponding key (N,S,E,W). Note however that pushing the stick up still moves you North. This can be slightly confusing until you get the hang of it.

If you get stuck help is at hand. Pressing the 'H' key gives you your position relative to the exit, while pressing 'M' shows you the maze from above complete with the positions of yourself and the exit. In order to prevent the game from being too easy, you can only use these facilities a small number of times in each game. Using the 'M' key also adds 5 steps to your score as an additional penalty.

Finally, pressing 'Q' allows you to quit the game with an option to play again (with different start and exit positions). If you don't want to play another game, the program will erase itself from memory. Pressing 'I' allows you to remind yourself of the instructions.

```
HY 10 REM *****************************
EI 20 REM *        THE WANDERER       *
TC 30 REM *     by STEPHEN PEDLER     *
GG 40 REM * ------------------------- *
PQ 50 REM * PAGE 6 MAGAZINE - ENGLAND *
ID 60 REM *****************************
BE 70 REM
CZ 130 RAMTOP=PEEK(106):POKE 106,RAMTOP-1
   6
LS 140 GRAPHICS 0:POKE 752,1:POSITION 2,2
   :? "Thinking a moment..."
LQ 150 DIM MAZE(17,17),LWAL(4),RWAL(4),P(
   4),A$(18),C$(5),D$(4),E$(12)
RX 160 A$="NORTHEASTSOUTHWEST":E$="THE WA
   NDERER"
SC 170 GOSUB 970:GOSUB 1890
TV 180 GOSUB 2140
RR 190 GOTO 690
KO 200 REM DRAW MAZE
DE 210 GRAPHICS 8:COLOR 1:SETCOLOR 2,12,4
   :SETCOLOR 1,12,12
UM 220 ON FAC GOTO 230,250,270,290
HZ 230 FOR J=1 TO 4:IF POSY-J<0 THEN P(J)
   =0:NEXT J:GOTO 310
QL 240 P(J)=MAZE(POSY-J,POSX):NEXT J:GOTO
    310
GX 250 FOR J=1 TO 4:IF POSX+J>17 THEN P(J
   )=0:NEXT J:GOTO 310
IW 260 P(J)=MAZE(POSY,POSX+J):NEXT J:GOTO
    310
HZ 270 FOR J=1 TO 4:IF POSY+J>17 THEN P(J
   )=0:NEXT J:GOTO 310
PH 280 P(J)=MAZE(POSY+J,POSX):NEXT J:GOTO
    310
HN 290 FOR J=1 TO 4:IF POSX-J<0 THEN P(J)
   =0:NEXT J:GOTO 310
TF 300 P(J)=MAZE(POSY,POSX-J):NEXT J
YU 310 IF P(1)=3 OR P(1)=4 THEN CL=1:GOTO
    350
BH 320 IF P(2)=3 OR P(2)=4 THEN CL=2:GOTO
    350
DU 330 IF P(3)=3 OR P(3)=4 THEN CL=3:GOTO
    350
IX 340 IF P(4)=3 OR P(4)=4 THEN CL=4
TC 350 FOR J=0 TO 4:LWAL(J)=0:RWAL(J)=0:N
   EXT J
SI 360 ON FAC GOTO 370,400,430,460
VR 370 FOR J=0 TO CL:RWAL(J)=MAZE(POSY-J,
   POSX+1):NEXT J
UR 380 FOR J=0 TO CL:LWAL(J)=MAZE(POSY-J,
   POSX-1):NEXT J
PH 390 POSITION 10,21:? A$(1,5):GOSUB 660
   :GOTO 490
ZD 400 FOR J=0 TO CL:RWAL(J)=MAZE(POSY+1,
   POSX+J):NEXT J
XP 410 FOR J=0 TO CL:LWAL(J)=MAZE(POSY-1,
   POSX+J):NEXT J
```

```
XT 420 POSITION 10,21:? A$(6,9):GOSUB 660:GOTO 490
VY 430 FOR J=0 TO CL:RWAL(J)=MAZE(POSY+J,POSX-1):NEXT J
OI 440 FOR J=0 TO CL:LWAL(J)=MAZE(POSY+J,POSX+1):NEXT J
HD 450 POSITION 10,21:? A$(10,14):GOSUB 660:GOTO 490
FR 460 FOR J=0 TO CL:RWAL(J)=MAZE(POSY-1,POSX-J):NEXT J
YP 470 FOR J=0 TO CL:LWAL(J)=MAZE(POSY+1,POSX-J):NEXT J
QV 480 POSITION 10,21:? A$(15,18):GOSUB 660
UW 490 REM DRAW FACING WALL
FW 500 IF P(CL)=4 THEN 530
VR 510 X=CL*30:Y=X/2
GM 520 PLOT X,Y:DRAWTO 319-X,Y:DRAWTO 319-X,159-Y:DRAWTO X,159-Y:DRAWTO X,Y
AY 530 REM DRAW CORRIDORS
QI 540 FOR J=0 TO CL-1:X=J*30:Y=X/2:C=(J+1)*30:D=C/2
IW 550 IF J=CL-1 THEN IF LWAL(J)=0 AND LWAL(J+1)<>3 THEN GOTO 580
TA 560 IF LWAL(J)=3 THEN PLOT C,159-D:DRAWTO C,D:DRAWTO X,Y:PLOT X,159-Y:DRAWTO C,159-D:GOTO 580
SV 570 PLOT C,159-D:DRAWTO C,D:DRAWTO X,D:PLOT X,159-D:DRAWTO C,159-D
GV 580 NEXT J
QS 590 FOR J=0 TO CL-1:X=J*30:Y=X/2:C=(J+1)*30:D=C/2
PH 600 IF J=CL-1 THEN IF RWAL(J)=0 AND RWAL(J+1)<>3 THEN GOTO 640
WG 610 IF RWAL(J)=3 THEN PLOT 319-X,159-Y:DRAWTO 319-X,Y:DRAWTO 319-C,D:DRAWTO 319-C,159-D:DRAWTO 319-X,159-Y
UY 620 IF RWAL(J)=3 THEN GOTO 640
QY 630 PLOT 319-X,159-D:DRAWTO 319-X,D:DRAWTO 319-C,D:DRAWTO 319-C,159-D:DRAWTO 319-X,159-D
GO 640 NEXT J
ZM 650 RETURN
WN 660 REM MOVES
HN 670 POKE 752,1:POSITION 10,22:? "MOVES =";MOVE
ZS 680 RETURN
PE 690 REM MAIN LOOP
QB 700 ? "K":STX=INT((RND(0)*16)+1):STY=INT((RND(0)*16)+1)
MZ 710 IF MAZE(STY,STX)=3 THEN 700
SZ 720 POSX=STX:POSY=STY
SE 730 GOSUB 1300
RR 740 FAC=1:GOSUB 200
WX 750 POKE 764,255
IH 760 S=STICK(0)
VS 770 IF S=15 THEN 870
HG 780 IF S=14 AND MAZE(POSY-1,POSX)=4 THEN 1720
VA 790 IF S=14 THEN IF MAZE(POSY-1,POSX)<>3 THEN MOVE=MOVE+1:POSY=POSY-1:GOSUB 200:GOTO 870
VT 800 IF S=7 AND MAZE(POSY,POSX+1)=4 THEN 1720
PL 810 IF S=7 THEN IF MAZE(POSY,POSX+1)<>3 THEN MOVE=MOVE+1:POSX=POSX+1:GOSUB 200:GOTO 870
EK 820 IF S=13 AND MAZE(POSY+1,POSX)=4 THEN 1720
MQ 830 IF S=13 THEN IF MAZE(POSY+1,POSX)<>3 THEN MOVE=MOVE+1:POSY=POSY+1:GOSUB 200:GOTO 870
VA 840 IF S=11 AND MAZE(POSY,POSX-1)=4 THEN 1720
DV 850 IF S=11 THEN IF MAZE(POSY,POSX-1)<>3 THEN MOVE=MOVE+1:POSX=POSX-1:GOSUB 200:GOTO 870
TX 860 GOSUB 1420
BV 870 K=PEEK(764)
TX 880 IF K=35 THEN FAC=1:GOSUB 200:GOTO 960
TY 890 IF K=42 THEN FAC=2:GOSUB 200:GOTO 960
UX 900 IF K=62 THEN FAC=3:GOSUB 200:GOTO 960
WT 910 IF K=46 THEN FAC=4:GOSUB 200:GOTO 960
BN 920 IF K=57 THEN HELP=HELP+1:GOSUB 1550:GOSUB 200:GOTO 960
PY 930 IF K=37 THEN MOVE=MOVE+5:LOOK=LOOK+1:GOSUB 2030:GOSUB 200:GOTO 960
TX 940 IF K=47 THEN GOTO 1450
PE 950 IF K=13 THEN GOSUB 2140:GOSUB 200
AA 960 POKE 764,255:GOTO 760
VF 970 RESTORE 1000
GJ 980 FOR ROW=0 TO 17:FOR COL=0 TO 17
PW 990 READ M:MAZE(ROW,COL)=M:NEXT COL:NEXT ROW
OR 1000 DATA 3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3
CS 1010 DATA 3,0,3,0,0,0,0,3,0,0,0,0,3,0,0,0,3,3
OP 1020 DATA 3,0,3,0,3,3,0,3,3,0,3,0,0,0,3,0,3,3
ZJ 1030 DATA 3,0,0,0,0,3,0,0,0,0,3,0,3,0,0,0,0,3
PH 1040 DATA 3,3,0,3,0,0,3,3,0,3,0,0,0,3,3,3,0,3
EC 1050 DATA 3,0,0,0,0,3,0,0,0,0,3,3,0,0,0,3,0,3
JE 1060 DATA 3,0,3,3,3,0,0,3,3,3,0,0,0,3,0,0,0,3
NI 1070 DATA 3,0,0,0,0,3,0,0,0,3,0,3,0,3,0,3,3,3
EC 1080 DATA 3,3,0,3,0,0,0,3,0,0,0,3,3,0,0,0,0,3
KU 1090 DATA 3,0,0,0,0,3,3,3,0,3,0,0,0,0,3,0,3,3
HZ 1100 DATA 3,0,3,0,3,3,0,0,0,0,3,0,3,0,0,0,3,3
LC 1110 DATA 3,0,0,0,0,3,0,3,3,0,0,0,0,3,3,3,0,3
GV 1120 DATA 3,3,0,3,0,3,0,0,0,3,0,3,0,0,3,0,0,3
NH 1130 DATA 3,0,3,3,0,0,0,3,0,0,0,3,3,0,3,0,3,3
NQ 1140 DATA 3,0,0,0,0,3,3,0,3,0,3,3,3,0,3,0,0,3
FL 1150 DATA 3,0,3,0,3,0,0,0,3,0,0,3,0,0,0,0,3,3
OO 1160 DATA 3,0,3,0,0,0,3,0,3,3,0,0,0,3,0,3,3,3
PO 1170 DATA 3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3,3
ED 1180 REM NEW EXIT
UD 1190 EXWALL=INT((RND(0)*4)+1)
TF 1200 EXIT=INT(RND(0)*16)+1:ON EXWALL GOTO 1210,1230,1250,1270
RX 1210 IF MAZE(1,EXIT)=3 THEN 1200
ZH 1220 MAZE(0,EXIT)=4:GOTO 1290
ZN 1230 IF MAZE(EXIT,16)=3 THEN 1200
DN 1240 MAZE(EXIT,17)=4:GOTO 1290
MU 1250 IF MAZE(16,EXIT)=3 THEN 1200
QP 1260 MAZE(17,EXIT)=4:GOTO 1290
```

```
IY 1270 IF MAZE(EXIT,1)=3 THEN 1200
ZM 1280 MAZE(EXIT,0)=4
BE 1290 RETURN
FH 1300 REM DRAW MAZE IN PLAN
XY 1310 GRAPHICS 1+16:POKE 756,RAMTOP-8:P
   OKE 88,0:POKE 89,RAMTOP-4:DL=PEEK(560)
   +256*PEEK(561):POKE DL+4,0:POKE DL+5,R
   AMTOP-
GH 1320 SETCOLOR 0,7,8:SETCOLOR 2,12,8
LA 1330 FOR ROW=0 TO 17:FOR COL=0 TO 17
IP 1340 M=MAZE(ROW,COL):POSITION COL+1,RO
   W:? #6;CHR$(M+32):NEXT COL
LE 1350 NEXT ROW
ZZ 1360 POSITION POSX+1,POSY:? #6;CHR$(5+
   32+128)
CI 1370 POSITION 4,20:? #6;"the wanderer"
FD 1380 POSITION 4,22:? #6;"press START"
OL 1390 POSITION 4,23:? #6;"to continue"
MX 1400 POKE 53279,8:IF PEEK(53279)<>6 TH
   EN 1400
XS 1410 POSITION POSX+1,POSY:? #6;CHR$(0+
   32):RETURN
BB 1420 REM SOUND
KY 1430 FOR J=1 TO 2:SOUND 0,80,10,15:FOR
    L=1 TO 20:NEXT L:SOUND 0,0,0,0:NEXT J
AT 1440 RETURN
ZC 1450 REM QUIT
FN 1460 OPEN #1,4,0,"K:"
EL 1470 ? "↖":POSITION 3,22:? "Are you su
   re [Y/N]?":GET #1,K
QI 1480 IF K<>89 AND K<>78 THEN 1470
BD 1490 IF K=78 THEN CLOSE #1:GOSUB 200:G
   OTO 760
BA 1500 IF K=89 THEN GRAPHICS 0:POSITION
   2,1:? "You gave up after ";MOVE;" move
   s."
IM 1510 POKE 752,1:POSITION 2,3:? "Play a
   gain [Y/N]?":GET #1,K
JN 1520 IF K<>89 AND K<>78 THEN 1510
WM 1530 IF K=89 THEN CLOSE #1:HELP=0:LOOK
   =0:MOVE=0:GOSUB 2010:GOSUB 1820:GOSUB
   1180:GOTO 690
SQ 1540 IF K=78 THEN POKE 106,RAMTOP:CLOS
   E #1:GRAPHICS 0:NEW
OI 1550 REM HELP
FX 1560 IF HELP>3 THEN ? "↖No more help l
   eft for this maze!":? :GOTO 1690
LF 1570 C$="SOUTH":D$="WEST":? "↖"
XU 1580 IF EXWALL=2 OR EXWALL=4 THEN 1640
HR 1590 IF EXWALL=3 THEN C$="NORTH":VERT=
   17-POSY:GOTO 1610
PB 1600 VERT=POSY
OA 1610 HORIZ=EXIT-POSX:IF HORIZ<0 THEN D
   $="EAST"
TN 1620 GOTO 1670
AU 1630 RETURN
BD 1640 IF EXWALL=4 THEN D$="EAST":HORIZ=
   POSX:GOTO 1660
QV 1650 HORIZ=17-POSX
DA 1660 VERT=POSY-EXIT:IF VERT<0 THEN C$=
   "NORTH"
IG 1670 ? "You are ";ABS(VERT);" steps to
    the ";C$;" of the"
FB 1680 ? "exit and ";ABS(HORIZ);" steps
   to the ";D$;"."
LE 1690 ? "Press START to go on."
UU 1700 IF PEEK(53279)<>6 THEN 1700
AQ 1710 RETURN
ZO 1720 REM YOU WIN
QD 1730 GRAPHICS 1+16:SETCOLOR 0,7,8
YR 1740 POSITION 2,9:? #6;"CONGRATULATION
   S!"
SN 1750 POSITION 2,10:? #6;"YOU FOUND YOU
   R WAY"
QC 1760 POSITION 2,11:? #6;"OUT IN ";MOVE
   ;" MOVES."
NY 1770 POSITION 2,13:? #6;"press start f
   or"
KW 1780 POSITION 2,14:? #6;"another game"
GI 1790 POKE 709,70:POKE 711,202:FOR J=1
   TO 20:NEXT J
PP 1800 IF PEEK(53279)<>6 THEN POKE 709,2
   02:POKE 711,70:FOR J=1 TO 20:NEXT J:GO
   TO 1790
DT 1810 LOOK=0:HELP=0:MOVE=0:GOSUB 2010:G
   OSUB 1820:GOSUB 1180:GOTO 690
YC 1820 REM CANCEL EXISTING EXIT
AK 1830 ON EXWALL GOTO 1840,1850,1860,187
   0
EK 1840 MAZE(0,EXIT)=3:GOTO 1880
IR 1850 MAZE(EXIT,17)=3:GOTO 1880
VQ 1860 MAZE(17,EXIT)=3:GOTO 1880
ZC 1870 MAZE(EXIT,0)=3
BN 1880 RETURN
HK 1890 REM REDEFINE CHARACTERS
NV 1900 RESTORE 1920
US 1910 FOR J=0 TO 33:READ BYTE:POKE 1536
   +J,BYTE:NEXT J
XU 1920 DATA 104,104,133,215,104,133,214,
   169,224,133,213,169,0,133,212,162,4,16
   0,0,177,212,145
WW 1930 DATA 214,200,208,249,230,213,230,
   215,202,208,242,96
CR 1940 A=USR(1536,(RAMTOP-8)*256)
CI 1950 FOR J=0 TO 23:READ BYTE:POKE (RAM
   TOP-8)*256+24+J,BYTE:NEXT J
ZR 1960 DATA 255,129,189,165,165,189,129,
   255
BC 1970 DATA 0,0,0,0,0,0,0,0
VE 1980 DATA 0,60,36,255,189,36,36,102
KT 1990 FOR J=0 TO 16:READ BYTE:POKE 1600
   +J,BYTE:NEXT J
NU 2000 DATA 104,104,104,133,213,169,0,13
   3,212,160,0,145,212,136,208,251,96
OM 2010 A=USR(1600,RAMTOP-4):A=USR(1600,R
   AMTOP-3)
AG 2020 RETURN
AS 2030 REM PAGE FLIP ROUTINE
YJ 2040 IF LOOK<3 THEN 2080
JR 2050 ? "↖No more looks this maze!":? :
   ? "Press START to continue"
VE 2060 IF PEEK(53279)<>6 THEN 2060
AV 2070 RETURN
ED 2080 GRAPHICS 1+16:POKE 88,0:POKE 89,R
   AMTOP-4:DL=PEEK(560)+256*PEEK(561)
YI 2090 POKE DL+4,0:POKE DL+5,RAMTOP-4
SW 2100 POKE 756,RAMTOP-8:SETCOLOR 0,7,8:
   SETCOLOR 2,12,8
ZH 2110 POSITION POSX+1,POSY:? #6;CHR$(5+
   32+128)
RE 2120 IF PEEK(53279)<>6 THEN 2120
XT 2130 POSITION POSX+1,POSY:? #6;CHR$(0+
   32):RETURN
TG 2140 REM INSTRUCTIONS
DB 2150 GRAPHICS 0:SETCOLOR 2,12,4:SETCOL
   OR 1,12,12:? "↖":POKE 752,1
VB 2160 ? E$:? :? "Manoeuvre through the
   maze using the":? "joystick. If your w
   ay is blocked, a"
KF 2170 ? "tone will sound and you must t
   ry"
CQ 2180 ? "another direction.":? :? "If y
   ou need help, the following keys"
```

continued on page 32

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GOING STATESIDE

There are lots of products advertised in the American magazines which are difficult to obtain here. Will they become available? To find out I spoke to Jerry Howells who is General Manager of Software Express, a mail order company in Birmingham who specialise in Atari, and who recently took a trip over to the States to find out whether these products could be made more easily available in the U.K.

P6. *What made you decide to go over to the States in search of software?*

J.H. Well, although you can get a lot of Atari product in England there is still one area that remains neglected. That is the utility side and there are similar areas that U.S. Gold and others have not hit upon such as the magazines. Although you can get them in this country they are not easily available. Also the other stuff like the APX titles and the public domain titles. Software wise products from people like O.S.S. and MMG have only been available in small quantities but there has never been enough. The only advertising you get is in ANTIC and ANALOG so what we basically decided was to go over and see those companies in order to see if we could get them into this country. We managed to get the exclusive rights to MMG and OSS to distribute in this country, plus we will be handling the advertising in the specialist magazines so we can get more people aware to make it worth while by selling in quantity. We know that they are not going to sell like Blue Max, Beach Head or anything like that but what we do expect is that more serious users who have wanted these products will come to an English supplier and get what they want without all the chances and hassle of sending money abroad. We are trying to fill a section of the market which will not only increase our business but also give Atari what it has been waiting for - the good serious products.

P6. *Who did you visit first?*

J.H. I flew into New York and then drove to English Town, New Jersey where MMG have got their base.

P6. *What sort of Company are MMG?*

J.H. Rather like us in size - about 8 people. The vice-president who I met was Greg Fremer who is responsible for the everyday running of the Company. Although they started out as a partnership - MMG standing for Mike, Mark and Greg they were bought out by a bigger company. The operation has been kept seperate. Amongst other things the Atari products include the BASIC COMPILER and an old title called Final Flight. They do a lot for the Commodore but also do a lot of contract work for Atari, IBM, Lotus and many others. Although a small company they have their fingers in a lot of pies. They did the templates for Lotus 1-2-3 and work for IBM - all the big business systems. Turnover is $2 million a year. The deal we have been offered is an exclusive for the U.K., possibly Europe, and we will be handling all their advertising. The latest product they have for the Atari is a sound digitiser which can take ordinary recordings and digitise them onto the Atari using the four voices. The quality is truly amazing. They can't wait to get the XEM and then what they can do with sound is nobody's business.

P6. *So MMG plan to write for the new machines?*

J.H. Oh, yes definitely. Although I didn't see any machines it is quite easy to develop software on the 800XL and then refine the products when the XE is available. The technical specifications are there so programs can be developed now. Atari are encouraging developers to begin work on software for the XE and have promised that XE machines will be made available to these people as soon as they are ready.

P6. *What products will you have available from MMG?*

J.H. The main product will be the BASIC COMPILER. There is a new program called Inside the Astral Rift which is described as similar to Ultima III but sufficiently different to make it a whole new game. We are currently evaluating this one. Also there will be DATA MANAGER II which they describe as being as good as SYNFILE. We are testing this and initial impressions seem to be that it has a lot of features that many databases lack. Another product is called Career Counsellor which is a questionnaire for school children or adults which asks a series of questions and seems to be very accurate. Basically you answer questions and are given a suggestion of career choices. We are not sure yet if this will be available.

P6. *Where next?*

J.H. Up to the Canadian border to a town called Rochester to see Computer Software Services who do the XL FIX which is a hardware modification to allow the XL machines to run 400/800 software without any translator. They have a new product coming out called, I think, The Silencer which is a very small circuit which fits inside a 1050 or an

an interview with Jerry Howells

810 and makes it so silent that there is no noise whatever, all you can see is the busy light. We will probably bring that in but only as a retailer not as a distributor. The market will probably be quite small.

P6. *Did you get over to the West coast?*
J.H. Yes, I drove back down to New York, another 500 miles, and then flew to San Francisco where I thought the trip really came alive. The first meeting was with ANTIC publications. They are a weird and wonderful outfit. Like most others they are a very young company and they have been going two and a half to three years. They remind you of the old journalists of the fifties with trilbies and cigars. Obviously having a lot of fun. Les Toruk was the first guy I met and we discussed ways in which we might help each other. They are very interested in the U.K. market. They have virtually split their company into two with the publication side and the mail order side which promotes books, APX and disks of public domain. Basically their own products. They do not sell software in the same way we do. They have some new books on the way. I then met with Jim Caparell, ANTIC's Editor and Publisher, and we talked about the American and U.K. markets. From what he said the two markets are very similar - they had the slump in the same way as we did last year but it is picking up very well now. They were impressed that I had gone out to the States so I was invited back later to discuss ways in which we could help them in the U.K. We ended up with an agreement to be sole distributor for ANTIC magazine in the U.K. as well as for all the APX titles, books and other software that ANTIC promote in their catalogue

P6. *You must be close to Sunnyvale by now?*
J.H. Yes, my first appointment was with Mike Peters of O.S.S. who is the President and also Bill Wilkinson. We ended up with an exclusive distribution deal for all their products. Although the cartridges have been available here the Tool Kits have never been available although there has been the demand. We will now be distributing these. Not much new product although they will be making all of their products for the ST and XE range. They will be promoting their products more in the U.K. They had a few bad experiences in the past which is something I found with all the companies I visited. They all knew about the British market and had in fact lost a lot of money through English distributors and were a bit paranoic but the fact that we went out there convinced them that we mean business. The deals were much better than I thought we would get.

P6. *Did you talk about the new Atari DOS which I believe Bill Wilkinson wrote?*
J.H. Yes, I saw DOS 2.5. It is a lot better than DOS 3. Bill Wilkinson saw that DOS3 was not good enough and DOS2 was okay so he decided to write something in between. He has several projects which he is working on but does not plan to promote commercially. He seems to work all night on odd bits of programming. DOS 2.5 will be available shortly and Bill Wilkinson did write it.

P6. *If you were in Sunnyvale, you must have gone to ATARI headquarters?*
J.H. Yes. I met with Sig Hartman who is the head of Atarisoft. ATARI U.S. is very impressive in a five story modern building. Sig Hartman was extremely nice but very powerful. I met a guy called John Sutch and we chatted for a couple of hours about the U.S. and U.K. markets. They were very interested in our Maths project, as were a lot of other companies. They were impressed by the presentation and content. It was the first time they had seen a complete course. There have been plenty of Revision aids but not a complete course. Unfortunately the school system there is totally different so we may not be able to do anything in the States. They were impressed enough to offer assistance in producing other software which we are thinking of at present. Unfortunately I did not have enough time at Atari but it was very impressive just being there. I met briefly with Sam Tramiel and Leonard Tramiel as well as Sig Hartman all of whom were very aggresive people in a very positive way - people that others listen to. I certainly came away with the impression that whatever Jack Tramiel says he will do will be done and I believe that a lot of other people believe that too.

P6. *How will you distribute all the products you have agreements for?*
J.H. We are planning to set up a seperate company called The Software Factory to provide distribution to a select number of retailers who want to support Atari and we will make available to them the more serious products that they have not been able to get in the past. Software Express will sell products by mail order but those retailers who are interested in the Atari will also be able to get the products.

P6. *What were your overall impressions about how third party companies view Atari, given their past history?*
J.H. Many of them are still wary but most do believe that Jack Tramiel will do what he has promised. Certainly there is a much better atmosphere for companies to begin supporting Atari again. After the takeover a lot of people became very wary as nothing seemed to happen for a long time but now that STs are beginning to become available as development packages, more companies are beginning to believe in Atari again. I certainly feel that Atari are going to come through well and I hope that we can provide U.K. owners with greater support. The games market has been the one which the big companies have concentrated on but with the agreements we have been able to negotiate we hope that Atari owners over here can begin to find it easier to get into the more serious side of Atari. ●

7. MISSION: ASTEROID

Background: Roberta Williams is a country girl whose childhood revolved around fairy tales, magic and fantasy. She read a lot, fantasized a lot and told stories to her friends. Some years later, after getting married and moving to Los Angeles, her husband introduced her to an entirely new form of story telling - computer Adventures.

Ken Williams was a programmer on an IBM mainframe and used to bring a terminal home every night. As it happens, the computer had some games on it including the classic Crowther and Woods original Adventure! After playing it at home, Roberta said to herself "Gee, I could do that!". So she designed an Adventure called "Mystery House" and Ken did the programming. It was a fairly simple game inspired by the Agatha Christie novel "Ten Little Indians". It had black and white line drawings and was only available for the Apple, but it was a start.

They formed On-Line Systems (which later became Sierra On-Line) so that they could distribute the game. Before long they released a second game called "Wizard and the Princess". It had full screen, high resolution colour graphics and was heralded as a major breakthrough in Adventures. On-Line's success was now assured.

Over the next couple of years, the number of Adventures increased with each new release seemingly bigger and harder than the previous ones. The one exception was "Mission: Asteroid". This was written as a beginners' Adventure and was accordingly given the number 0. There are now seven in the series, but only the even numbered ones are available for the Atari. Who knows? Maybe the others will one day be translated as well. The full series is listed below.

#0: Mission: Asteroid
#1: Mystery House (not available for Atari)
#2: Wizard and the Princess
#3: Cranston Manor (not available for Atari)
#4: Ulysses and the Golden Fleece
#5: Time Zone (not available for Atari)
#6: The Dark Crystal

Review: We'll take a look at Mission: Asteroid as it's the first in the series, but most of the comments are equally applicable to the whole series. When the game is first booted, the program checks for unformatted sectors on track 3. This results in the dreaded graunch ... graunch ... graunch that I've come to hate in Sierra On-Line's copy protection. I wish they wouldn't do that! Haven't they ever heard of bad sectors and duplicate sectors and short sectors and skewed tracks and...

Anyway, you are then asked to flip the disk to side 2 and press RETURN. When you've done so, a triangle appears along with the message "IF TRIANGLE APPEARS BLUE PRESS THE START KEY. IF IT IS NOT BLUE PRESS THE OPTION KEY." The triangle on my screen could best be described as scunge (which definitely isn't blue), so I pressed the OPTION key. However, I soon realised that I could press the START key and there was absolutely no difference in the pictures. I reasoned that the test was necessary because the game used artifacting. They needed to determine whether the computer had a CTIA or GTIA chip, then the program could compensate so that the colours looked right. However, this only applies if you have an NTSC computer and television (as in the U.S.A.). It does not apply to we PAL users in Australia and the United Kingdom, so you can press either key and it doesn't make the slightest difference.

The game then commences and you get your first glimpse of the much acclaimed graphics. What do you think? Terrible aren't they? Apple owners can't be very fussy! The pictures look like they've been drawn by a kindergarten child. To make matters worse, the artifacting mentioned above just doesn't work on PAL televisions. Instead of the glorious technicolor that we're used to on the Atari, we get just two colours - black and a horrible yellow that looks like cat vomit.

The screen layout is just like GRAPHICS 8. Most of the screen is devoted to a high resolution picture of your surroundings except for the four lines of text at the bottom. Each time a new picture is drawn, the bell rings from the console speaker. (This also happens with Wizard and the Princess and Ulysses and the Golden Fleece, but The Dark Crystal uses the TV speaker.) If there are more than four lines of text, then the first four lines will be printed and you have to press RETURN to continue with the next four lines. This prevents the text from scrolling under the picture before you get a chance to read it. Unfortunately, no matter how hard you try, you nearly always forget to press RETURN before starting to enter your next command. As a result, you are punished with another repulsive bell, but this time it's three times as long as before. In a short period of time, I got rather annoyed with this to say the least. A reviewer in another magazine was ready to throw a brick through the TV before his family dragged him off screaming. Another resorted to pulling his computer apart and disconnecting the console speaker!

If you're thinking that there must be a less drastic fix, then you're right. Use a paper punch to cut a write protect notch in side A of your Adventure disk and run the program at the end of this column. Hey presto! No more bells! Note that this

by Garry Francis of Sydney, Australia

will void any warranty you may have on your disk, so make sure you are very careful not to make any mistakes. The program has all the instructions you need and is written in such a way that there is no way it will alter your disk unless it is identical to mine. (Try it on any of your other disks if you don't believe me.) If you follow the instructions, you can't go wrong.

At this point, I must give credit to a friend named Peter Bamford. He was the one who originally thought of the fix and passed it on to me. I merely repeated the procedure and wrote the utility to allow any mug to fix his own disks.

Peter began by searching the disk for the bell character, i.e. $FD. Unfortunately, it appeared about a million times. Not only did it appear as data or part of an address, but it also turned out to be a 6502 opcode. Obviously, the search would have to be narrowed down. (Incidentally, don't bother checking track 3, because it is unformatted and will cause your drive to have a siezure.)

He then searched for the sequence $1F, $D0. This is the hardware register CONSOL in LSB, MSB format. Most readers would be familiar with reading this register to see whether a console key is being pressed. It can also be written to to control the movement of the cone in the console speaker. If a sequence such as $8D, $1F, $D0 (or STA $D01F in assembly language) was found, he'd be in luck. Unfortunately, no such luck. This was becoming a real Adventure in itself.

He then took a look through the Operating System source listing for a clue and accidentally stumbled across the label BELL in the cross reference map. It turned out to be a subroutine in the display handler that rings the bell. This is where I became involved. The obvious next step was to search the disk for the sequence $20, $0A, $F9 which translates to JSR BELL (or JSR $F90A) in assembly language. This sequence occurred five times. Aha, jackpot! The first occurrance was found at sector $02 byte $31 in Mission: Asteroid and Wizard and the Princess and sector $05 byte $32 in Ulysses and the Golden Fleece. It was used to ring the bell to let you know that you had to turn the disk to side B. I decided to leave this intact.

The second occurrance was at sector $F2 byte $71 in Asteroid and Wizard and sector $E8 byte $71 in Ulysses. This sounded the bell after each picture was drawn. I replaced this with $EA, $EA, $EA which translates to three NOPs in assembly language.

The third, fourth and fifth occurrances were immediately after one another at sector $F3 byte $02 in Asteroid and Wizard and sector $E9 byte $02 in Ulysses. This was the triple length bell that occurs if you forget to press the RETURN key when there is more text to print. I again replaced these with NOPs.

Each disk was modified and tested. The results? Silence. Beautiful silence!

Incidentally, the JSR BELL is an illegal entry point. If the programmers have done it once, then they have probably done it several times. This implies that the Sierra On-Line Adventures may not run on revised Operating Systems such as Revision B, but this shouldn't affect us as Revision B was never issued in a PAL version. XL users will probably need the XL translator disk. If in doubt, try to check that the programs run okay on a system similar to your own before

continued on page 19

```
CS 1 REM ######################################
VM 2 REM #    SIERRA ON-LINE SILENCER    #
SA 3 REM #        by Garry Francis        #
GL 4 REM #          PAGE 6 Issue 15        #
CW 5 REM ######################################
KZ 100 POKE 82,2:POKE 83,39:GRAPHICS 0:POKE 710,18:POKE 752,1
QP 110 DIM SEARCH$(3),REPLACE$(3),ML$(4),NAME$(29),BUFFER$(128):FOR I=1 TO 3:READ A:SEARCH$(I)=CHR$(A):NEXT I
BN 120 FOR I=1 TO 3:READ A:REPLACE$(I)=CHR$(A):NEXT I:FOR I=1 TO 4:READ A:ML$(I)=CHR$(A):NEXT I:BUFFER$(128)=" "
HT 130 DATA 32,10,249,234,234,234,104,76,83,228
XJ 140 A=ADR(BUFFER$):HI=INT(A/256):LO=A-256*HI:POKE 769,1:POKE 772,LO:POKE 773,HI:OPEN #1,4,0,"K:"
GF 150 ? CHR$(125):POSITION 13,1:? "BELL SILENCER":? "   FOR SIERRA ON-LINE ADVENTURES"
LH 160 ? :? "This utility will modify any of the":? "following Sierra On-Line Adventures"
ZV 170 ? "to eliminate the annoying ring from":? "the console speaker.":? :RESTORE 500
XC 180 FOR I=1 TO 4:READ NAME$,SECTOR:? "   ";I;". ";NAME$:NEXT I:? :? "Which do you wish to modify (1-4)?"
NF 190 POKE 764,255:TRAP 190:GET #1,A:IF A=52 THEN CLOSE #1:GRAPHICS 0:END
CU 200 IF A<49 OR A>51 THEN 190
GI 210 RESTORE 10+10*A:READ NAME$,SECTOR
QX 220 ? CHR$(125):POSITION 7,1:? "INSTRUCTIONS FOR MODIFYING":POSITION 20-LEN(NAME$)/2,2:? NAME$
HX 230 ? :? "1. Ensure that the disk has a write":? "   protect notch.":? :? "2. Insert disk into drive 1."
YC 240 ? :? "3. Press RETURN to modify disk or ESC":? "   to abort."
CC 250 POKE 764,255:TRAP 250:GET #1,A:IF A=27 THEN 150
AB 260 IF A<>155 THEN 250
YT 270 TRAP 40000:HI=INT(SECTOR/256):LO=SECTOR-256*HI:POKE 778,LO:POKE 779,HI:POKE 770,82:GOSUB 400
VF 280 BYTE=113:GOSUB 420:POKE 770,87:GOSUB 400
KX 290 SECTOR=SECTOR+1:HI=INT(SECTOR/256):LO=SECTOR-256*HI:POKE 778,LO:POKE 779,HI:POKE 770,82:GOSUB 400
FX 300 BYTE=2:GOSUB 420:BYTE=5:GOSUB 420:BYTE=8:GOSUB 420:POKE 770,87:GOSUB 400
BQ 310 POSITION 11,22:? "OPERATION COMPLETE";CHR$(253):FOR I=1 TO 1000:NEXT I:GOTO 150
GH 400 A=USR(ADR(ML$)):IF PEEK(771)=1 THEN RETURN
DS 410 POP :POSITION 5,22:? "ERROR ";PEEK(771);"...OPERATION ABORTED";CHR$(253):FOR I=1 TO 1000:NEXT I:GOTO 150
VN 420 IF BUFFER$(BYTE+1,BYTE+3)=SEARCH$ THEN BUFFER$(BYTE+1,BYTE+3)=REPLACE$:RETURN
WV 430 POP :POSITION 3,22:? "DIFFERENT DISK...OPERATION ABORTED";CHR$(253):FOR I=1 TO 1000:NEXT I:GOTO 150
XS 500 DATA MISSION: ASTEROID,242
AI 510 DATA WIZARD AND THE PRINCESS,242
BD 520 DATA ULYSSES AND THE GOLDEN FLEECE,232
FU 530 DATA NONE (Return to BASIC),0
```

□

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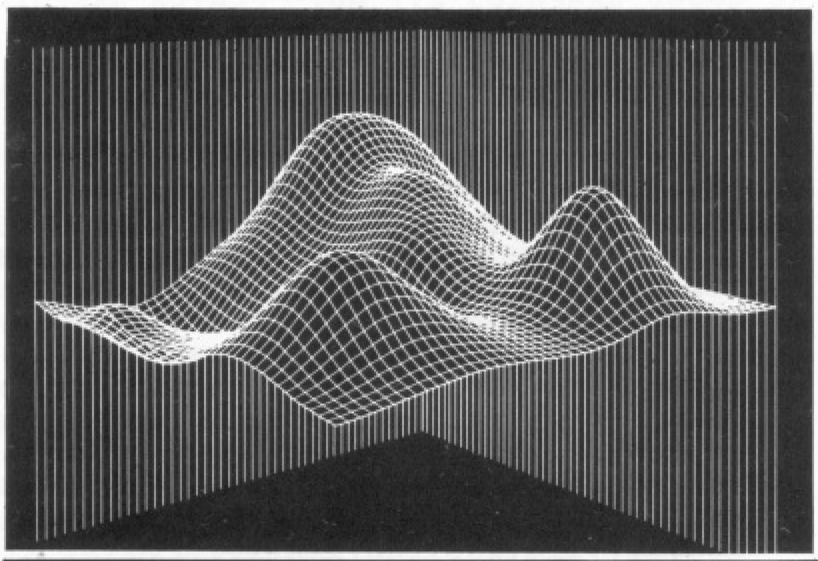
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MISSION: ASTEROID

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you buy them. I don't think you'll have any trouble, but it's better safe than sorry.

Up until this point, my comments have been very negative. This is not to say that the game is no good. On the contrary. As far as Adventures go, Mission: Asteroid is very good! The aim of the game is to blow up a huge asteroid before it collides with the earth. The game commences at 12:00 noon and the asteroid is estimated to hit the earth at 7:15 P.M. This gives you 7 hours 15 minutes of game time to complete your mission. Each move takes 5 minutes, so you effectively have 87 moves to solve the game. The puzzles are fairly simple and logical, making it ideal for beginners. It is the time element that's the real killer.

Mission: Asteroid also has one of the most intriguing mazes that I've ever encountered. Although the game gives you a route through the middle of it, it is not the most efficient, so you should try mapping the maze to find a better way. It's quite a challenge, but I'd say very few people have bothered. Even the two books of Adventure solutions mentioned below have conveniently left it out!

Hints: There are no hints this issue because none of the problems seemed hard enough to warrant them (and I couldn't think of anything particularly clever anyway). It's just a matter of working out what to do, then doing it in the shortest possible time. If you get really desperate, a complete solution can be found in "A Shortcut Through Adventureland" by Jack Cassidy, Pete Katz, Richard Owen Lynn and Sergio Waisman (Datamost) and "The Book of Adventure Games" by Kim Schuette (Arrays, Inc.). ●

The New Machines — UPDATE

Rumours or Facts?

By now the Hannover Computer Fair will be over and Atari's new machines will have had their European launch. Maybe we will know which of the machines and peripherals will be available and at what price. Meanwhile several rumours circulate in the States - most from very reliable sources - and we report them here, in the absence of any official announcements, for those of you desperate for any news on things to come.

.... Production models of the XE and ST range were shown at a California User Group meeting in early March with LOGO as the installed language in the ST. BASIC, if required, is said to be available as a seperate purchase, although users opinions may well change Atari's mind.

.... The XEP portable 8-bit computer is to be dropped due to lack of interest (not surprising) but a portable ST is planned instead.

.... The XEM music machine has been postponed indefinitely due to problems with the sound chip.

.... All new software for the XE range will run on the 800XL and 800 but will look for the extra 64K RAM of the 130XE and use it if found.

.... 25 to 30 software packages will be immediately available for the ST when it is put on sale.

.... Prices ... the promise that no software will be more than $49 has now become 'no more than $100' but the majority will be under $50. The $100 500K disk drive has now become a $200 500K disk drive.

.... The ST will be released initially in 512K only as the OS will not be in ROM until bugs are sorted out.

.... A previously unannounced 256K ST is said to be planned for $499.

.... The 1050 drive will gradually be replaced by a compatible 5¼" drive - the XF521 - at around $150. The new Disk Operating System - provisionally DOS 2.5 - is by Bill Wilkinson of O.S.S. but a further DOS will be developed for the 3¼" drives.

.... New Atari software for the 8-bit range to include SHOPKEEPER, an easy to use small business accounting package that also tracks inventory and emulates an electronic cash register. SONG PAINTER is a music construction program controlled by joystick.

Keep your eyes and ears open over the coming weeks. Some of these rumours will now be facts. Some will be forgotten. The only way to report *facts* is to see things in person and next issue PAGE 6 will bring you a first hand report of the Hannover Computer Fair. Don't miss it. ●

PLAYER MISSILE GRAPHICS

an all-in-one routine

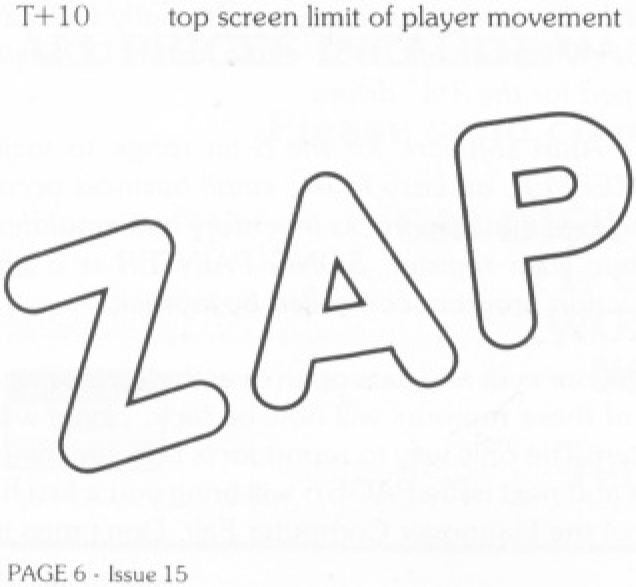
This machine code routine differs from most published utilities since it is table driven. This means that a large number of parameters can be defined at the setting-up stage, and accessed automatically when the M/C code is called. Only two numbers are passed through the USR function - the Player identification number and a number between 1 and 15 to indicate the direction of movement required. Joystick reading and screen limits for movement are all controlled by the M/C routine. Also all 16 collision registers are scanned, and a number returned to address 1791.

This means that very little BASIC is needed in the main program loop so the routine runs quite quickly. The routine is liberally filled with REM statements, which need not be typed in, to explain each stage of initialisation.

This routine was passed on to us as being 'for PAGE 6' but had no details of the author. If the author would like to get in touch we will ensure that full credit is given.

STRUCTURE OF THE TABLE WHICH DRIVES THE PLAYER MOVEMENT ROUTINES

T+0	player's current vertical position on screen
T+1	player's current horizontal position on screen
T+2	player's base address, low byte
T+3	player's base address, high byte
T+4	address of appropriate horizontal position register, low byte
T+5	address of appropriate horizontal position register, high byte
T+6	height of player-number of image lines
T+7	right hand screen limit of player movement
T+8	left hand screen limit of player movement
T+9	bottom screen limit of player movement
T+10	top screen limit of player movement



```
UG 30000 REM **************************
HP 30001 REM * 8 WAY JOYSTICK MOVEMENT *
             * OF PLAYERS WITH SCREEN  *
             * LIMITS AND COLLISION    *
HH 30002 REM *       DETECTION         *
             * ----------------------- *
             * PAGE 6 MAGAZINE ENGLAND *
UV 30003 REM **************************
KC 30005 GRAPHICS 2:? #6;" PLAYER GRAPHIC
   S":? #6;" DEMONSTRATION"
YM 30010 ? #6;"":? #6;" PLUG JOYSTICK":?
   #6;" INTO LEFT-HAND PORT"
NH 30015 X=0:RESTORE 30035
CK 30020 READ D:IF D=-1 THEN 30115
EG 30025 POKE 1536+X,D:X=X+1:GOTO 30020
ZL 30030 REM  MACHINE CODE TO MOVE PLAYER
              STARTS AT ADDRESS 1536
JO 30035 DATA 104,104,133,204,104,133,203
   ,104,104,133,205,201,15,240,97,160,10,
   177,203,153,216,0,136,16,248
MF 30040 DATA 165,205,201,6,240,22,201,10
   ,240,18,201,14,240,14,201,5,240,37,201
   ,9,240,33,201,13,240
VR 30045 DATA 29,208,59,164,216,196,226,2
   40,53,166,222,177,218,136,145,218,200,
   200,202,224,255,208,244,166,216
JX 30050 DATA 202,208,29,240,27,165,216,1
   97,225,240,26,24,101,222,168,166,222,1
   77,218,200,145,218,136,136,202
TH 30055 DATA 224,254,16,244,166,216,232,
   160,0,138,145,203,165,205,201,15,240,5
   5,201,5,240,22,201,6,240
ET 30060 DATA 18,201,7,240,14,201,9,240,2
   1,201,10,240,17,201,11,240,13,208,29,1
   66,217,228,223,240,23
AZ 30065 DATA 232,208,9,240,7,166,217,228
   ,224,240,12,202,160,1,138,145,203,136,
   141,10,212,145,220
OO 30070 REM SCAN ALL 16 COLLISION
             REGISTERS AND STORE RESULT
             AT ADDRESS 1791
AU 30075 DATA 162,16,202,48,23,189,0,208,
   240,248,134,203,6,203,6,203,6,203,6,20
   3,165,203,29,0,208
EC 30080 DATA 141,255,6,96
XV 30085 REM MACHINE CODE TO CLEAR N
             BYTES OF RAM STARTING AT
             ADDRESS A
AR 30090 DATA 104,104,133,204,104,133,203
   ,104,133,206,170,104,133,205,169,0,160
   ,0,145,203,136,208,251,230,204
YI 30095 DATA 202,48,6,208,244,164,205,20
   8,240,96,-1
BH 30100 REM
CG 30105 REM
BL 30110 REM
VP 30115 PMBASE=PEEK(106)-8
DS 30120 REM  START OF PLAYER PARAMETER
              TABLE WHICH DRIVES THE M/C
             CODE SUBROUTINES
CC 30122 REM TABLE IS LOCATED IN THE
             UNUSED RAM BETWEEN PMBASE
             AND PLAYER 0 BASE
IX 30125 T=PMBASE*256
ZC 30130 PLR0=T+512:REM  PLAYER 0 BASE
```

```
NI 30135 GRAPHICS 1
NS 30140 REM  SET UP PM REGISTERS 
EO 30145 POKE 559,46:REM  2-LINE RES 
ZF 30150 POKE 704,12:REM  COLOUR OF PLR0 
OB 30155 POKE 53256,2:REM  WIDTH OF PLR0 
BK 30160 POKE 54279,PMBASE:REM  PAGE NO. 
YJ 30165 POKE 53277,3:REM  ENABLE 
VU 30170 PLR0HI=INT(PLR0/256):PLR0LOW=PLR
         0-PLR0HI*256
JZ 30175 H0HI=INT(53248/256):H0LOW=53248-
         H0HI*256
CN 30180 REM
DM 30185 REM
CR 30190 REM
QH 30195 REM SET UP VALUE TABLE STARTING 
         AT ADDRESS T 
FP 30200 POKE T,25
SK 30205 POKE T+1,120
CD 30210 POKE T+2,PLR0LOW:POKE T+3,PLR0HI
MG 30215 POKE T+4,H0LOW:POKE T+5,H0HI
LX 30220 POKE T+6,10
VG 30225 POKE T+7,200
UF 30230 POKE T+8,48
VW 30235 POKE T+9,100
QQ 30240 POKE T+10,10
YZ 30245 POSITION 3,5:? #6;"A    B    c    d
         ":REM  SOMETHING FOR PLAYER TO COLLIDE
          WITH 
CE 30250 REM
DD 30255 REM
CI 30260 REM
ES 30265 REM  DRAW PLAYER 
DV 30270 Z=USR(1738,T+512,128)
PJ 30275 S=0:RESTORE 30290
JU 30280 READ SHAPE:IF SHAPE=-1 THEN 3029
         5
HX 30285 POKE PLR0+PEEK(T)+S,SHAPE:S=S+1:
         GOTO 30280
CK 30290 DATA 16,56,56,16,124,238,198,68,
         -1
CM 30295 POKE 53248,PEEK(T+1):REM  SET 
         PLR0 INITIAL STARTING POSITION 
YV 30300 X=USR(1536,T,PEEK(632)):REM 
         MOVE PLAYER 
FE 30305 IF PEEK(1791)>0 THEN 30340
YJ 30310 GOTO 30300
CQ 30315 REM
BV 30320 REM
CU 30325 REM
PW 30330 REM COLLISION ROUTINE TRIGGERED 
         BY A NON-ZERO VALUE AT 
         ADDRESS 1791 
CY 30335 REM
CT 30340 X=USR(1738,T+512,128):REM  WIPE 
         OUT PLAYER RAM 
MV 30345 ? "KADDRESS 1791 CONTAINS ";PEEK
         (1791)
NW 30350 FOR FLASH=1 TO 15:POKE 712,INT(R
         ND(0)*256):NEXT FLASH:POKE 712,0
FF 30355 POKE 1791,0:POKE 53278,0
JO 30360 POKE T,70:POKE T+1,120:POKE 5324
         8,0
KM 30365 ? "↓PRESS TRIGGER TO CONTINUE"
CC 30370 IF STRIG(0)=1 THEN 30370
JI 30375 ? "K":GOTO 30270
```

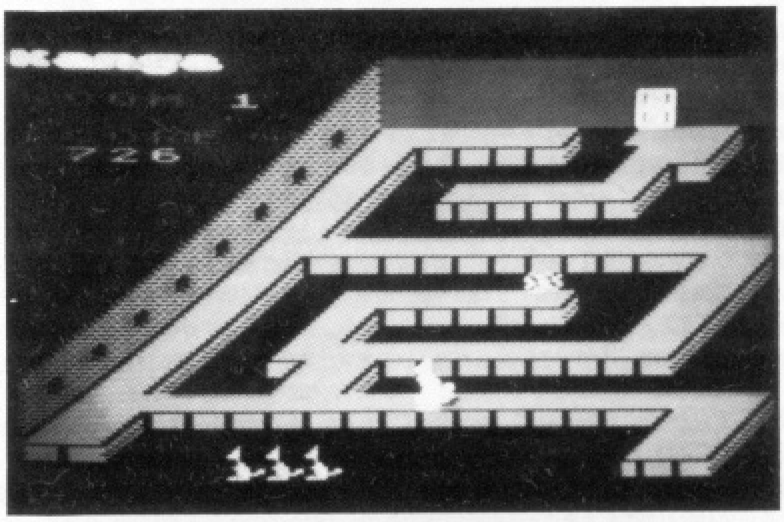
KANGA

by Allan Knopp

Kanga is a maze game in which you control a jumping kangaroo moving around various platforms. In order to progress to the next screen you must first get to the sparkling jewel in the centre of the screen and jump up to touch it. This causes a further section of the platform to appear which will enable you to reach the exit.

Coming too close to the edge of the platform will cause the kangaroo to fall into space and lose a life. Lives can also be lost by being hit by a laser which fires at random from the windows in the left hand wall. There is a time limit which causes the game to end when it reaches zero. The score remaining at the end of each screen is added to the total and displayed at the end of the game as the final score.

```
EI 1 REM ******************************
SP 2 REM *        K A N G A          *
ET 3 REM *      by ALLAN KNOPP       *
IB 4 REM * ------------------------- *
IY 5 REM *  PAGE 6 MAGAZINE - ENGLAND *
EN 6 REM ******************************
NM 7 REM
XN 100 GOSUB 1095
XM 105 GOSUB 1135:GOSUB 965
TV 110 POKE 710,36:POKE 708,38:POKE 709,5
   6
FK 115 Z=12:GOTO 120
NN 120 REM P.M. MOVER SUBROUTINE
ZW 125 REM SETUP
YR 130 RESTORE 465
NG 135 DIM M0$(6),M1$(6),M2$(6),M3$(6),C$
   (32)
UF 140 DIM PMMOV$(100),P0$(30),P1$(30),P2
   $(30),P3$(30),PF$(30),MISMOV$(114):MOV
   E=ADR(PMMOV$):FOR X=1 TO 100:READ N
XW 145 PMMOV$(X)=CHR$(N):NEXT X
LY 150 REM NOW READ SHAPE DATA
OF 155 FOR X=1 TO 12:READ N:P0$(X)=CHR$(N
   ):NEXT X
OT 160 FOR X=1 TO 12:READ N:P1$(X)=CHR$(N
   ):NEXT X
QJ 165 FOR X=1 TO 12:READ N:P2$(X)=CHR$(N
   ):NEXT X
SV 170 FOR X=1 TO 2:READ N:P3$(X)=CHR$(N)
   :NEXT X
LF 175 FOR X=1 TO 12:READ N:PF$(X)=CHR$(N
   ):NEXT X
YX 180 PMBASE=INT((PEEK(145)+3)/4)*4:POKE
    54279,PMBASE:REM SETUP P.M. AREA
RW 185 PMB=PMBASE*256
SK 190 PMR=ADR(P0$)
RX 195 PML=ADR(P1$)
PB 200 PMD=ADR(P2$)
ZN 205 PMS=ADR(P3$):REM * PM DATA ADDR
AL 210 PMF=ADR(PF$)
EK 215 POKE 559,46:POKE 53277,3:REM P.M.
   DMA
WQ 220 POKE 704,14:POKE 707,2:POKE 623,1
LV 225 GOSUB 665:TRAP 660
VG 230 REM PROG HERE
ZZ 235 GOSUB 965
TM 240 POKE 711,56:GOTO 730
DY 245 L=3:SC=1:CC=246:GOSUB 835
PR 250 K=0:TIM=900
HV 255 SOUND 2,240,10,2:SOUND 3,243,10,2
XO 260 POSITION 0,2:? #6;"ROOM ";SC:POSIT
   ION 0,4:? #6;"SCORE"
FC 265 X=180:Y=94:PMM=PMD:GOSUB 450
RB 270 REM
UG 275 POSITION 5,22:FOR R=1 TO L:? #6;"f
   ";:NEXT R:POKE 53278,1
AH 280 POSITION 5,23:FOR R=1 TO L:? #6;"q
   ";:NEXT R
PU 285 REM READ STICK
II 290 S=STICK(0)
TV 295 TIM=TIM-2:POSITION 1,5:? #6;TIM;"
   ":IF TIM<0 THEN GOTO 545
```

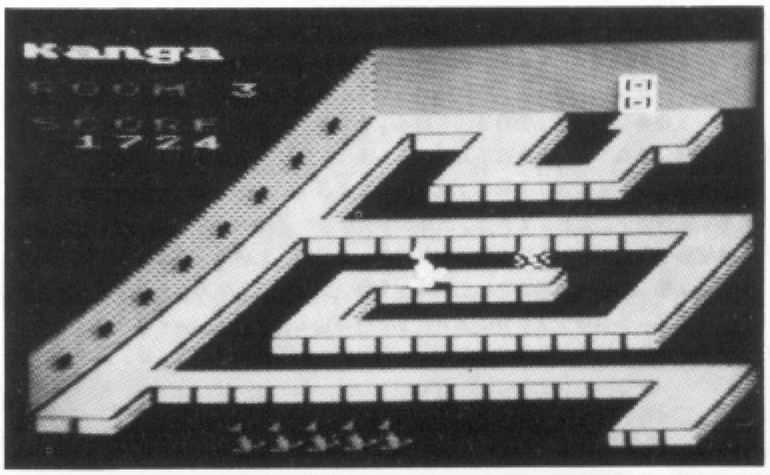



```
MW 300 IF PEEK(53279)=3 THEN GOSUB 815:GO
   TO 730
IO 305 IF S=11 THEN X=X-4:PMM=PML:IF X<40
    THEN X=40:GOSUB 450
FG 310 IF S=14 THEN Y=Y-2:X=X+2:PMM=PMD:I
   F X>192 THEN X=192:GOSUB 450
LI 315 IF S=7 THEN X=X+4:PMM=PMR:IF X>192
    THEN X=192:GOSUB 450
BR 320 IF S=13 THEN Y=Y+2:X=X-2:PMM=PMF:I
   F X<40 THEN X=40:GOSUB 450
MJ 325 IF X<40 THEN X=40
UM 330 IF X>200 THEN X=200
AA 335 GX=(X-48)/8:GY=(Y-16)/4:IF GY>20 T
   HEN GY=20
YI 340 IF Y>94 THEN Y=94
XP 345 POKE 711,Z:POKE 77,0
QC 350 LOCATE GX+1,GY+2,C:LOCATE GX,GY+1,
   D:LOCATE GX,GY+2,E
TT 355 CC=CC+1:IF CC>249 THEN CC=246
GI 360 COLOR CC:PLOT 13,12
GM 365 IF D=250 THEN GOTO 865
ST 370 IF D>33 OR D<48 THEN Y=Y-2:GOSUB 4
   50:Y=Y+2:GOSUB 450
```

```
DU 375 IF D>58 AND D<62 THEN Y=Y+4:X=X+2:
   GOSUB 450
CS 380 IF D>48 THEN Y=Y+2:GOSUB 450
VX 385 IF D<33 AND E<33 THEN GOSUB 515
JJ 390 IF D<33 THEN GOSUB 515
KG 395 IF E<33 THEN GOSUB 515
IK 400 IF C<33 THEN GOSUB 515
JP 405 IF D>246 AND D<249 THEN GOSUB 825
XR 410 IF D=90 AND K=1 THEN TIM=TIM+100:G
   OTO 730
LA 415 IF Y<20 THEN Y=20
TE 420 IF RND(0)>0.99 THEN GOSUB 960
XF 425 Z=Z+16:IF Z>255 THEN Z=12
TB 430 CC=CC+1:IF CC>249 THEN CC=246
GS 435 COLOR CC:PLOT 13,12
IR 440 MSL=MSL+1:IF MSL>10 THEN GOSUB 550
SI 445 GOTO 285
CE 450 A=USR(MOVE,0,PMB,PMM,X,Y,11):A=USR
   (MOVE,3,PMB,PMS,X+2,Y+9,2)
AK 455 FOR W=30 TO 80 STEP 10:SOUND 1,W,1
   0,10:NEXT W:SOUND 1,0,0,0:RETURN
CE 460 REM P.M. MOVE DATA
UR 465 DATA 216,104,104,104,133,213,104,2
   4,105,2,133,206,104,133,205,104,133,20
   4,104,133,203,104,104,133,208
IE 470 DATA 104,104,133,209,104,104,24,10
   1,209,133,207,166,213,240,16,165,205,2
   4,105,128,133,205,165,206,105
IY 475 DATA 0,133,206,202,208,240,160,0,1
   62,0,196,209,144,19,196,207,176,15,132
   ,212,138,168,177,203,164
LD 480 DATA 212,145,205,232,169,0,240,4,1
   69,0,145,205,200,192,128,208,224,166,2
   13,165,208,157,0,208,96
YQ 485 REM PLAYER SHAPE DATA
DJ 490 DATA 4,6,7,4,12,30,156,124,16,31,0
   ,0
QD 495 DATA 32,96,224,32,48,120,59,62,8,2
   48,0,0
SW 500 DATA 12,14,8,13,30,28,28,61,30,36,
   64,128
IF 505 DATA 62,124
BL 510 DATA 24,56,8,24,28,53,30,28,22,36,
   72,0
QC 515 POKE 623,4:FOR Y=Y TO 100:SOUND 0,
   Y,10,10:Y=Y+0.5:GOSUB 450:SOUND 0,0,0,
   0:NEXT Y
RI 520 L=L-1:IF L<1 THEN GOTO 545
AT 525 POSITION 5,22:? #6;"          ":POSI
   TION 5,23:? #6;"          "
TM 530 POSITION 5,22:FOR R=1 TO L:? #6;"f
   ";:NEXT R:POKE 53278,1
AP 535 POSITION 5,23:FOR R=1 TO L:? #6;"q
   ";:NEXT R
UC 540 X=180:Y=90:POKE 623,1:RETURN
TU 545 TIM=0:GOSUB 815:GOTO 730
HA 550 REM SHOOT MISSILE
SD 555 POKE 53257,0:POKE 53278,1
IS 560 XMP=XMP+1:ON XMP GOSUB 620,625,630
   ,635,640,645,650,655
MI 565 FOR XM=XM TO 225 STEP 10:GOSUB 570
   :NEXT XM:MSL=0:SOUND 1,0,0,0:RETURN
UJ 570 A=USR(MISL,1,PMB,ADR(M1$),XM,YM,6)
   :SOUND 1,XM/8,10,14:IF PEEK(53257)<>1
   THEN RETURN
RL 575 SOUND 1,0,0,0:A=USR(MISL,1,PMB,ADR
   (M1$),225,YM,6)
NB 580 FOR WD=1 TO 5:FOR WW=0 TO 4:SOUND
   0,12,50,10:A=USR(MOVE,0,PMB,PMM,180,94
   ,11):ON WW GOSUB 600,605,610,615
TV 585 FOR WD=1 TO 3:FOR WW=0 TO 4:SOUND
   0,12,50,10:A=USR(MOVE,0,PMB,PMM,X,Y,11
   ):ON WW GOSUB 600,605,610,615
BA 590 REM KANGA HIT
ZC 595 NEXT WW:SOUND 0,0,0,0:NEXT WD:POKE
    53257,0:POKE 53278,1:GOSUB 520:GOTO 2
   85
AF 600 PMM=PMR:RETURN
UW 605 PMM=PMD:RETURN
AH 610 PMM=PMR:RETURN
VU 615 PMM=PMF:RETURN
LB 620 XM=56:YM=88:RETURN
GQ 625 XM=64:YM=80:RETURN
GJ 630 XM=72:YM=72:RETURN
HE 635 XM=80:YM=64:RETURN
KB 640 XM=88:YM=56:RETURN
KW 645 XM=96:YM=48:RETURN
ES 650 XM=104:YM=40:RETURN
UF 655 XM=112:YM=32:XMP=0:RETURN
GX 660 TRAP 40000:POKE 53257,0:POKE 53278
   ,1:GOTO 285
MB 665 REM MISSILE SETUP
BU 670 RESTORE 695
BH 675 MISL=ADR(MISMOV$):FOR X=1 TO 114:R
   EAD N:MISMOV$(X)=CHR$(N):NEXT X
SO 680 REM LOAD MISSILE IMAGE
VJ 685 FOR I=1 TO 6:READ N:M1$(I)=CHR$(N)
   :NEXT I
QI 690 POKE 705,156:POKE 53260,12
RI 695 DATA 216,104,104,104,133,213,104,1
   33,206,104,24,105,128,133,205,165,206,
   105,1,133,206,104,133,204,104
LV 700 DATA 133,203,104,104,133,208,104,1
   04,133,209,104,104,24,101,209,133,207,
   160,0,162,0,134,212,169,252
YM 705 DATA 166,213,240,7,10,10,9,3,202,2
   08,249,166,212,49,205,145,205,196,209,
   144,30,196,207,176,26
ZL 710 DATA 132,212,138,168,177,203,164,2
   13,240,5,10,10,136,208,251,164,212,17,
   205,145,205,232,169,0,240
DM 715 DATA 0,200,192,128,208,196,166,213
   ,165,208,157,4,208,96
CX 720 DATA 0,0,3,0,0,0
ZW 725 RETURN
ZP 730 GOSUB 965
IZ 735 POSITION 0,2:? #6;"score"
LT 740 POSITION 0,3:? #6;STIM
ZN 745 IF STIM>HSC THEN HSC=STIM
YR 750 POSITION 0,5:? #6;"HI ":POSITION 0
   ,6:? #6;HSC
EI 755 POSITION 4,21:? #6;"press start"
UD 760 SOUND 0,240,10,10:SOUND 1,243,10,1
   0
MG 765 CC=246
TM 770 CC=CC+1:IF CC>249 THEN CC=246
HD 775 COLOR CC:PLOT 13,12
HD 780 FOR W=1 TO 10:NEXT W
XU 785 Z=Z+16:IF Z>255 THEN Z=12
EB 790 POKE 711,Z
GL 795 IF PEEK(53279)<>6 THEN 770
LQ 800 POKE 710,36:POKE 708,38:STIM=0
EC 805 SOUND 0,0,0,0:SOUND 1,0,0,0
XX 810 GOSUB 815:GOSUB 965:POKE 623,1:GOT
   O 245
VA 815 FOR W=0 TO 19:COLOR 32:PLOT W,0:DR
   AWTO W,23:NEXT W:RETURN
SM 820 FOR W=1 TO 3:SOUND 1,W*10,10,10:NE
   XT W:SOUND 1,0,0,0:K=1:RETURN
KK 825 ON SC GOSUB 840,840,845,850,855,84
   5
XS 830 FOR WW=1 TO 3:FOR W=1 TO 15:SOUND
   1,W*2,10,10:NEXT W:NEXT WW:RETURN
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```
WV 835 POSITION 6,17:? #6;"$+'":POSITION
     6,18:? #6;")+(":RETURN
QD 840 POSITION 12,8:? #6;"$+'":POSITION
     12,9:? #6;")+(":RETURN
HU 845 POSITION 11,5:? #6;"$+'":POSITION
     11,6:? #6;")+(":RETURN
PJ 850 POSITION 7,10:? #6;"(  &":POSITION
     7,11:? #6;"@  ?":POSITION 6,17:? #6;"
     $+'":POSITION 6,18:? #6;")+("
HW 855 POSITION 11,5:? #6;"$+'":POSITION
     11,6:? #6;")+(":RETURN
NV 860 GOSUB 815:GOSUB 965:GOSUB 910:POSI
     TION 6,23:? #6;"success":GOSUB 935:GOT
     O 735
QT 865 SC=SC+1:ON SC GOSUB 875,880,885,89
     0,895,900,905:STIM=STIM+TIM:L=L+1:TIM=
     TIM+750:GOSUB 815:GOSUB 965
JM 870 FOR S=150 TO 1 STEP -2:SOUND 1,S,1
     0,10:NEXT S:GOTO 260
LI 875 REM COLOURS FOR SCREENS
EN 880 POKE 710,54:POKE 708,56:RETURN
RF 885 POKE 710,102:POKE 708,104:RETURN
VR 890 POKE 710,132:POKE 708,134:RETURN
ER 895 POKE 710,164:POKE 708,166:RETURN
XM 900 POKE 710,228:POKE 708,232:RETURN
RJ 905 GOTO 860
RD 910 REM MUSIC
EO 915 RESTORE 920:FOR S=1 TO 54:READ T:S
     OUND 2,T,10,8:FOR W=1 TO 10:NEXT W:NEX
     T S:RETURN
WZ 920 DATA 121,121,96,121,121,162,121,12
     1,96,121,121,162,121,121,108
YV 925 DATA 96,108,121,128,128,121,108,12
     8,162,121,121,96,121,121,162
IQ 930 DATA 121,121,96,121,121,162,121,10
     8,96,108,108,96,121,121,121,121,121,12
     1,0,0,0,0,0,0
YE 935 SOUND 1,233,14,14:SOUND 2,230,14,1
     4:SOUND 3,231,14,10:SOUND 0,228,14,14
AI 940 RESTORE 950:FOR I=1 TO 32:READ C:C
     $(I)=CHR$(C):NEXT I:C$(15,15)=CHR$(22)
     :X=USR(ADR(C$),10)
RY 945 FOR S=0 TO 3:SOUND S,0,0,0:NEXT S
PC 950 DATA 104,104,104,72,162,57,160,0,1
     73,0,210,101,20,141,22,208,141,10,212,
     136,208,242,202,208,237,104
PP 955 DATA 56,233,1,208,228,96
EA 960 XMP=RND(0)*6:GOSUB 550:RETURN
HB 965 REM * SCREEN SETUP *
NS 970 POSITION 0,0:? #6;"kbngb      ;++++++
     +++++"
IQ 975 POSITION 0,1:? #6;"          <++++++
     +++++"
HS 980 POSITION 0,2:? #6;"          ;=++++++
     +z+++"
KC 985 POSITION 0,3:? #6;"          <=++++++
     +z+++"
BL 990 POSITION 0,4:? #6;"          ;>!+++++:
     &++'"
GF 995 POSITION 0,5:? #6;"          <=#'////@
     &++("
MT 1000 POSITION 0,6:? #6;"         ;>!+(
     )'/@"
MS 1005 POSITION 0,7:? #6;"         <=#'@&+++
     ++("
DT 1010 POSITION 0,8:? #6;"         ;>!+( ?///
     //@"
XO 1015 POSITION 0,9:? #6;"         <=#'@"
CO 1020 POSITION 0,10:? #6;"        ;>!+++++++
     +++++++"
OQ 1025 POSITION 0,11:? #6;"        <=#'//////
     ////$+'"
MC 1030 POSITION 0,12:? #6;"  ;>!+(
     X   )+("
IQ 1035 POSITION 0,13:? #6;"  <=#'@&+++++
     +:  &+'@"
NK 1040 POSITION 0,14:? #6;" ;>!+( )'////
     /@ )+("
VA 1045 POSITION 0,15:? #6;" <=#'@&+(
     &+'@"
UQ 1050 POSITION 0,16:? #6;";>!+( )++++++
     ++++("
WF 1055 POSITION 0,17:? #6;"<=#'@ ///////
     ////@"
VA 1060 POSITION 0,18:? #6;">!+("
TF 1065 POSITION 0,19:? #6;"=#+++++++++++
     ++++++'"
XK 1070 POSITION 0,20:? #6;"!+'//////////
     ///$++("
QH 1075 POSITION 0,21:? #6;"#+(
     )+'@"
RI 1080 POSITION 0,22:? #6;"//@
     &++( "
```




```
QE 1085 POSITION 0,23:? #6;"
     ?//@"
BA 1090 RETURN
LI 1095 GRAPHICS 2:POKE 711,42:POKE 708,3
     6:POKE 710,0:POKE 709,10:POKE 752,1
WT 1100 POSITION 7,3:? #6;"Kanga"
AC 1105 POSITION 9,5:? #6;"BY":POSITION 4
     ,6:? #6;"ALLAN KNOPP"
RD 1110 ? "PRESS START  TO BEGIN
              OPTION TO RESTART DURING
     GAME"
VQ 1115 IF PEEK(53279)<>6 THEN 1115
HO 1120 POSITION 2,1:? #6;"back in a mome
     nt"
XA 1125 FOR W=1 TO 150:SOUND 0,W,10,10:NE
     XT W:SOUND 0,0,0,0
AK 1130 RETURN
FJ 1135 REM EDIT CHARACTER SET
NJ 1140 RESTORE 1190
SR 1145 MEMTOP=PEEK(106):GRTOP=MEMTOP-4
TT 1150 POKE 106,GRTOP:GRAPHICS 1+16:CHRO
     M=PEEK(756)*256
DR 1155 DIM A(8),R$(1)
NZ 1160 CHRAM=GRTOP*256:POKE 756,GRTOP
QN 1165 FOR N=0 TO 1023:POKE CHRAM+N,PEEK
     (CHROM+N):NEXT N
SP 1170 FOR K=1 TO 30:READ R$:R=ASC(R$)
PP 1175 IF R<32 THEN R=R+64
TJ 1180 IF R<96 THEN IF R>31 THEN R=R-32
SN 1185 FOR I=0 TO 7:READ A:A(I)=A:B=I+R*
     8+256*GRTOP:POKE B,A:NEXT I:NEXT K
DP 1190 DATA !
KU 1195 DATA 170,254,85,253,171,251,87,24
     7
DM 1200 DATA #
```

```
DR 1205 DATA 175,239,95,223,191,191,127,1
   27
OE 1210 DATA <
ZW 1215 DATA 10,15,21,31,42,63,85,127
PD 1220 DATA >
IW 1225 DATA 170,254,84,252,168,252,85,25
   3
OV 1230 DATA =
MH 1235 DATA 170,255,85,255,170,255,85,25
   5
EJ 1240 DATA $
ZN 1245 DATA 0,254,253,253,251,251,247,24
   7
EX 1250 DATA %
YQ 1255 DATA 239,239,223,223,191,191,127,
   127
OI 1260 DATA ;
RM 1265 DATA 0,0,1,1,2,3,5,7
FO 1270 DATA &
UC 1275 DATA 0,0,1,1,3,3,7,7
GC 1280 DATA '
AS 1285 DATA 254,254,253,253,251,251,246,
   247
HB 1290 DATA )
QJ 1295 DATA 15,15,31,31,63,63,127,127
FR 1300 DATA (
MV 1305 DATA 237,239,218,222,180,188,104,
   120
ZR 1310 DATA W
OJ 1315 DATA 76,49,130,154,89,65,140,50
AQ 1320 DATA Y
GE 1325 DATA 147,136,36,89,154,36,17,201
SS 1330 DATA F
QN 1335 DATA 32,32,96,96,224,224,32,32
XM 1340 DATA Q
TW 1345 DATA 48,48,120,59,59,62,88,248
QK 1350 DATA @
WW 1355 DATA 208,240,160,224,64,192,128,1
   28
JI 1360 DATA /
WL 1365 DATA 0,127,127,127,127,127,127,12
   7
JA 1370 DATA .
CM 1375 DATA 0,254,254,254,254,254,254,25
   4
IS 1380 DATA -
JW 1385 DATA 0,255,255,255,255,255,255,25
   5
HZ 1390 DATA +
NM 1395 DATA 255,255,255,255,255,255,255,
   255
PM 1400 DATA ?
TC 1405 DATA 0,15,15,15,15,15,15,15
NM 1410 DATA :
DM 1415 DATA 224,224,208,208,176,176,96,1
   12
BD 1420 DATA Z
ZP 1425 DATA 255,129,189,165,165,189,129,
   255
AK 1430 DATA X
XJ 1435 DATA 38,152,129,90,90,129,25,100
VA 1440 DATA K
ZP 1445 DATA 238,236,248,252,238,238,0,0
RI 1450 DATA B
UU 1455 DATA 0,124,6,126,230,127,0,0
WN 1460 DATA N
PG 1465 DATA 0,252,238,238,238,239,0,0
TR 1470 DATA G
KK 1475 DATA 0,127,230,230,126,6,230,124
AD 1480 DATA V
LK 1485 DATA 153,36,66,153,153,66,36,153
BI 1490 RETURN
```

contact

ALPHACOM 42 PRINTER: For sale in perfect condition. £45 o.n.o. Contact Phil Redman on 01-299 2381 most evenings after 8.30 p.m. or at weekends.

TUNBRIDGE WELLS AREA: Am I the only owner in Tunbridge Wells? Surely not! I would like to meet other users in my area. Also can anybody tell me how to survive the brick in the opening sequence of Hitch Hiker's Guide to The Galaxy? Tony Chamberlain, 29, Albany Hill, Tunbridge Wells, Kent, TN2 3RX. Tel. Tunbridge Wells 20694.

COVENTRY AREA: New owner would like to get in touch with others. Needs help with programming etc. Mr A. Tokely, 33, Lord Street, Chapelfields, Coventry, CV5 8DA.

CHELMSFORD/BRAINTREE USER GROUP: I want to start a local user group. Anyone who might be interested please phone me on Chelmsford 440512. Ian Leonard.

PEN-PALS (WORLDWIDE!): I would like to correspond with other owners anywhere in the world. I have an Atari 800 with disk drive. Roy Lynch, 24, Oakdene Road, Anfield, Liverpool, Merseyside, L4 2SR.

COSMIC BALANCE: Anyone wishing to pit their best designs of ships against others from around the country in a competition please contact me by letter or phone. Russ Ford, The Warren, 46, Lindleys Lane, Kirkby-in-Ashfield, Notts, NG17 8AD. Tel. 0602 654758 between 9 a.m. and 6 p.m. any day except Wednesday.

1027 PRINTER:-Does anyone know how to inlude the £ sign in letters? Someone must know! Russ Ford as above. *(Several people have asked this. If someone will write in with the answer, I will publish it. Ed.)*

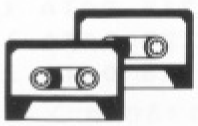
EARTHQUAKE ... 1906: How do you get past the 'FIRE-ZONE'? Is the manhole significant? Please help. Mark Jones, 18, Cadoc Road, W. Pontnewydd, Cwmbran, Gwent, NP44 1HA.

CURSE OF CROWLEY MANOR: How do you get past the numerical lock? Have I got far to go? Mark Jones as above.

ANALOG/PAGE 6: Anybody got ANALOG 1 - 6, 10, 16 and 23? Also PAGE 6 issue 1? Needed to complete my collections. Good prices paid or I have ANALOG 9 and 11 to swap plus 3 ANTICs and 12 COMPUTE!s. Mark Jones (again!). Address as above.

The CONTACT column may be used for any purpose other than the exchange or sale of software. If you have a problem send it in to CONTACT. If you can help someone else, get in touch with them.

The BOOSTER



There are two versions of this program, one for the 400/800 and one for the XL models. The only difference is in the program to make the Cassette Booster. Once boosted a program can be loaded on any machine so you will have no problem if you upgrade to an XL.

Fed up with waiting fifteen minutes for that program to load? Running short on cassette storage space? Look no further for Cassette Booster will not only save you valuable time but money as well.

WHAT IT DOES

The program will enable your own programs to be saved out to tape 50% faster than normal and programs thus saved are automatically loaded back in 50% faster. There is no special loader program or reprogramming required once Cassette Booster has been booted.

HOW DOES IT DO IT?

The cassette handling routine in ROM saves data out to tape at 600 baud (bits per second) but to take account of motor variations and tape stretch etc. it can load data at different speeds, usually between 300 and 900 baud.

The Cassette Booster inserts a new cassette handler into memory which writes data out at about 900 baud. This rate was chosen for two reasons. Firstly, rates in excess of 900 baud became unreliable with frequent loading errors and secondly, I wanted to avoid the need for a seperate loader program having to be loaded prior to each program.

On loading, the computer calculates the baud rate from speed data automatically saved out with the program and adjusts itself accordingly to the faster rate.

HOW TO GET BOOSTED

The programs are in Basic and will run with any size memory. The BASIC program will create a machine code 'boot' tape. Type in the version specific to your machine and, having checked your typing with TYPO II, CSAVE a copy before running it. Now RUN the program. There will be an introductory message and a short wait before your computer 'beeps' twice. Place a blank cassette in the recorder then press Record and Play on the recorder and any key on the computer. The machine code data will be saved to tape.

When the recorder stops and the READY prompt appears on the screen make sure that you have CSAVEd the Basic program (just in case) and then rewind the machine code program you have just created. You are now ready to boot in the Cassette Booster.

If you wish to use the Booster to save your programs in future the following procedure should be followed each time you switch on your computer. Make sure that the Cassette Booster machine code program is in the recorder (NOT the Basic version). Switch on the computer with the START key held down. You will hear a single 'beep'. Press the Play key on the recorder and then any key on the computer. The Cassette Booster will automatically load into memory and protect itself from being erased by SYSTEM RESET etc. (only switching off the power will remove it) and will then hand over control to your BASIC or ASSEMBLER program .

You can now program away to your hearts content and when you CSAVE or SAVE or LIST to the cassette, your program will be automatically saved out faster and will henceforth load in faster every time. It's as easy as that!

CAUTIONS AND ADVICE

The BASIC program POKEs the code for the boot maker into page 6 of memory and the code for the cassette handler into page 20. The USR call passes control to the boot maker which then takes the data for the handler from page 20 and saves it out to tape in boot format.

As page 20 is used for the data, this BASIC program will not work with DOS installed. If you want to save it to disk, save it before running it or the data will be corrupted.

The machine code Booster program cannot, unfortunately, be used with DOS installed either as both use the same memory area.

If you use English Software's ACE you can still enjoy the benefits of the Cassette Booster by developing your program with ACE installed as usual, saving the named program to tape, booting in the Cassette Booster, loading your program back in and then saving it out again at the faster speed. Interestingly, 100% machine code programs can also be 'boosted'. If you use one of the published back-up programs just install Cassette Booster first, then load and run the back-up program. This results in the back-up being saved faster, and as some of these programs normally take 10 to 15 minutes to load, the reduction to 5 to 10 minutes is a welcome benefit.

I hope that you find the program useful. All who have used it are now busily going through their program library and re-saving 'boosted' versions thus freeing more tape for additional programs. Now you have no excuse for not typing in all those long listings!

by Phil Davies

```
EI 1 REM ******************************
HG 2 REM * THE BOOSTER - 400/800 VERS. *
VZ 3 REM *        by PHIL DAVIES       *
EB 4 REM * --------------------------- *
IY 5 REM *  PAGE 6 MAGAZINE - ENGLAND  *
EN 6 REM ******************************
NM 7 REM
BP 10 ? "   CASSETTE BOOSTER MAKER 400/80
   0 "
AE 11 ? "                BY PHIL DAVIES"
FU 12 ? :? :?
XA 13 ? "        please wait a few seconds
   "
FY 14 ? :? :?
XD 100 FOR A=1536 TO 1613:READ B:POKE A,B
   :NEXT A
BA 101 DATA 104,162,16,169,3,157,66,3,169
   ,8,157,74,3,169,128,157,75,3,169,75,15
   7,68,3,169,6
EB 102 DATA 157,69,3,32,86,228,48,41,169,
   11,157,66,3,169,0,157,68,3,169,32,157,
   69,3,169,0
OU 103 DATA 157,72,3,169,2,157,73,3,32,86
   ,228,48,11,169,12,157,66,3,32,86,228,4
   8,1,96,0
IE 104 DATA 67,58,155
FE 110 FOR A=8192 TO 8443:READ B:POKE A,B
   :NEXT A
FQ 111 DATA 0,4,0,7,37,7,169,60,141,2,211
   ,169,161,141,231,2,133,14,169,8,141,23
   2,2,133,15
ZS 112 DATA 173,254,191,133,10,173,255,19
   1,133,11,24,96,160,0,185,26,3,201,0,24
   0,9,200,200,200,192
UO 113 DATA 34,208,242,56,96,169,67,153,2
   6,3,200,169,73,153,26,3,200,169,7,153,
   26,3,96,99,7
LD 114 DATA 218,7,213,239,194,7,39,240,74
   ,239,76,89,7,0,169,67,141,238,2,169,4,
   141,239,2,96
YZ 115 DATA 165,43,133,62,165,42,41,12,20
   1,4,240,5,201,8,240,14,96,76,93,239,16
   0,80,198,17,169
EA 116 DATA 0,141,137,2,96,169,128,141,13
   7,2,169,2,32,88,240,48,238,169,67,141,
   4,210,169,4,141
KA 117 DATA 6,210,169,96,141,0,3,32,104,2
   28,169,52,141,2,211,169,3,162,3,160,19
   2,32,92,228,169
VO 118 DATA 255,141,42,2,165,17,240,193,1
   73,42,2,208,247,169,0,133,61,160,1,96,
   166,61,157,0,4
FR 119 DATA 230,61,160,1,224,127,240,1,96
   ,169,252,32,8,8,169,0,133,61,96,173,13
   7,2,48,8,160
SV 120 DATA 1,169,60,141,2,211,96,166,61,
   240,10,142,127,4,169,250,32,8,8,48,236
   ,162,127,169,0
EP 121 DATA 157,0
HZ 122 FOR A=8444 TO 8608:READ B:POKE A,B
   :NEXT A
VJ 123 DATA 4,202,16,250,169,254,32,8,8,7
   6,226,7,141,255,3,169,85,141,253,3,141
   ,254,3,169,87
FB 124 DATA 32,25,8,96,141,2,3,169,0,141,
   9,3,169,131,141,8,3,169,3,141,5,3,169,
   253,141
NS 125 DATA 4,3,169,96,141,0,3,169,0,141,
   1,3,169,35,141,6,3,173,2,3,160,64,201,
   82,240
TX 126 DATA 2,160,128,140,3,3,165,62,141,
   11,3,32,86,8,96,186,142,24,3,169,1,133
   ,66,173,0
```

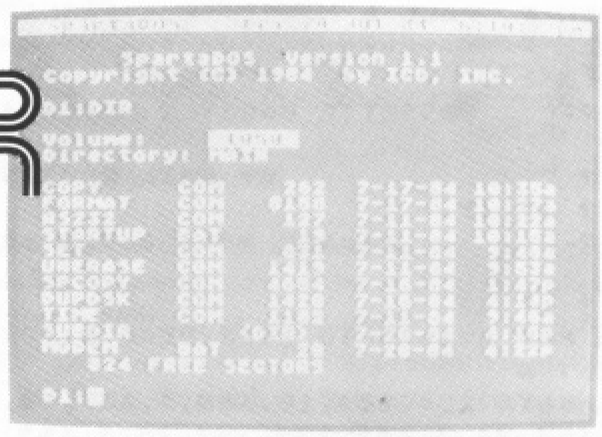
→ →

```
EI 1 REM ******************************
QX 2 REM *   THE BOOSTER - XL VERSION  *
VZ 3 REM *        by PHIL DAVIES       *
EB 4 REM * --------------------------- *
IY 5 REM *  PAGE 6 MAGAZINE - ENGLAND  *
EN 6 REM ******************************
NM 7 REM
DL 10 ? "   CASSETTE BOOSTER MAKER 600/80
   0XL"
AE 11 ? "                BY PHIL DAVIES"
FU 12 ? :? :?
XA 13 ? "        please wait a few seconds
   "
FY 14 ? :? :?
WH 100 FOR A=1536 TO 1612:READ B:POKE A,B
   :NEXT A
YF 101 DATA 104,162,16,169,3,157,66,3,169
   ,8,157,74,3,169,128,157,75,3,169,74,15
   7,68,3,169,6
CU 102 DATA 157,69,3,32,86,228,48,40,169,
   11,157,66,3,169,0,157,68,3,169,32,157,
   69,3,169,0
BC 103 DATA 157,72,3,169,2,157,73,3,32,86
   ,228,48,10,169,12,157,66,3,32,86,228,4
   8,0,96,67
MH 104 DATA 58,155
FE 110 FOR A=8192 TO 8443:READ B:POKE A,B
   :NEXT A
LA 111 DATA 0,4,0,7,37,7,169,60,141,2,211
   ,169,227,141,231,2,133,14,169,8,141,23
   2,2,133,15
ZS 112 DATA 173,254,191,133,10,173,255,19
   1,133,11,24,96,160,0,185,26,3,201,0,24
   0,9,200,200,200,192
UO 113 DATA 34,208,242,56,96,169,67,153,2
   6,3,200,169,73,153,26,3,200,169,7,153,
   26,3,96,99,7
AG 114 DATA 223,7,121,253,199,7,203,253,2
   28,252,76,89,7,0,169,67,141,238,2,169,
   4,141,239,2,96
DN 115 DATA 165,43,133,62,165,42,41,12,20
   1,4,240,5,201,8,240,14,96,76,247,252,1
   60,80,198,17,169
OX 116 DATA 0,141,137,2,96,169,128,141,13
   7,2,169,2,32,252,253,48,238,169,67,141
   ,4,210,169,4,141
DR 117 DATA 6,210,169,96,141,0,3,32,104,2
   28,169,52,141,2,211,166,98,188,143,254
   ,189,141,254,170,169
HK 118 DATA 3,32,92,228,169,255,141,42,2,
   165,17,240,188,173,42,2,208,247,169,0,
   133,61,160,1,96
YT 119 DATA 166,61,157,0,4,230,61,160,1,2
   24,127,240,1,96,169,252,32,13,8,169,0,
   133,61,96,173
NX 120 DATA 137,2,48,8,160,1,169,60,141,2
   ,211,96,166,61,240,10,142,127,4,169,25
   0,32,13,8,48
OD 121 DATA 236,162
KG 122 FOR A=8444 TO 8674:READ B:POKE A,B
   :NEXT A
XP 123 DATA 127,169,0,157,0,4,202,16,250,
   169,254,32,13,8,76,231,7,141,255,3,169
   ,85,141,253,3
GM 124 DATA 141,254,3,169,87,32,30,8,96,1
   41,2,3,169,0,141,9,3,169,131,141,8,3,1
   69,3,141
WO 125 DATA 5,3,169,253,141,4,3,169,96,14
   1,0,3,169,0,141,1,3,169,35,141,6,3,173
   ,2,3
XU 126 DATA 160,64,201,82,240,2,160,128,1
   40,3,3,165,62,141,11,3,32,91,8,96,169,
   1,133,66,173
```

→

US DOUBLER

Double Density on the Atari 1050



Reviewed by R A Matulko

Are you considering purchasing a disk drive for your Atari? Do you want more disk capacity than is available on the normal single density format? Are the double density drives from Trak or Astra unavailable or the Indus drive too expensive?

Like many others I have come to realise the inadequacy of the storage capacity and speed of the single density drive especially when using a compiler disk and when compared with the Apple or BBC drives for example. However I am accustomed to using DOS 2 on my 810 drive and did not particularly want to change to a completely different system or format. I was thus very attracted to OSS's DOS XL which claimed compatability and could also be used in double density format if I were ever to purchase a double density drive.

When Atari reduced the price of the 1050 drive by £100 to £199 this became a much more attractive product as it offered DOS 3 with dual density, but does anyone like DOS 3? I certainly did not and was content to use the dual (medium) density format offered by the 1050 with DOS 2 as amended with the enhancements published in Antic Magazine, August 1984. This gave me 963 single density sectors (120K data) instead of the original 720 (90K data), a non-standard approach but it represented about 33% improvement.

Finally I have just received the US Doubler (US meaning UltraSpeed) from ICD Inc. This is a package containing two custom integrated circuit chips and a new advanced DOS called SpartaDOS. The new chips are straight replacements for two originals on the 1050 PC board and very full instructions for their removal and installation are given. Believe me, it is really very easy. No soldering was required, I had merely to pull out the originals and push in the replacements. Now my 1050 drive is a true double density (180K data) drive whilst still offering the original single and dual density formats and full compatability with other DOS's is maintained.

The US Doubler package costs $79.95 direct from ICD Inc., and may now be available from their UK distributers Zoomsoft.

So for the cost of the 1050 (about £200) plus the US Doubler (about £70) we can at last have an economical true double density drive. You should be aware, however, that opening up your disk drive will almost certainly make your warranty null and void.

SpartaDOS is a completely new DOS for the Atari that ICD claim to have modelled on the IBM PC-DOS. It supports single, dual and double densities, single and double sided 5¼" and 8" disk drives and even claims to be ready to support a hard disk drive when it becomes available. It also contains a special stripped down DOS using very little memory for loading game disks.

Most of the SpartaDOS functions are resident in RAM and therefore no data is lost when switching to and from DOS. However it does take up about 1.5K more of your scarce RAM and you might want to consider using DOS XL instead especially if your main programming language is BASIC XL. The big advantage claimed for SpartaDOS when used with the US Doubler is that it writes and reads three times faster than DOS 2 or DOS XL.

As a test I loaded and saved 'House of Secrets' (one of the longest programmes ever published in Page 6) under DOS 2, DOS XL and SpartaDOS five times and averaged the results:

	Read	Write
DOS 2 (with verify)	20 secs.	55 secs.
DOS 2 (without verify)	20 secs.	20 secs.
DOS XL (single density)	20 secs.	21 secs.
DOS XL (double density)	16 secs.	18 secs.
SpartaDOS	7 secs.	10 secs.

Whilst this might not be an ideal test it clearly shows that SpartaDOS does indeed perform I/O operations at a much faster rate, it reads about three times faster than the single density DOS's and writes between about two and five times as fast. Think how much time you can save using this DOS and in double density too. You could save wear and tear on your disk drive and halve your disk costs!

A full review of SpartaDOS will follow when I have been able to understand and appreciate its advanced facilities.

I am very pleased with the US Doubler package and can unreservedly recommend it to you.

Addresses:-

ICD Inc.,
828 Green Meadow Avenue,
Rockford,
Illinois 61107,
U.S.A.

Zoomsoft,
46, Huntsworth Mews,
London NW1 6DB

THE BOOSTER 400/800 version continued

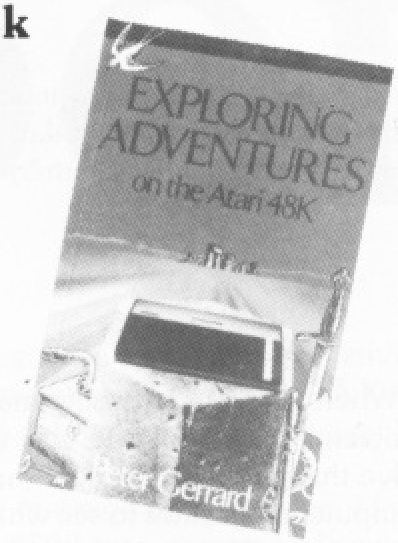
```
VA 127 DATA 3,201,96,208,3,76,110,8,76,10
   7,233,76,183,235,173,3,3,16,248,169,67
   ,141,4,210,169
YT 128 DATA 4,141,6,210,32,246,235,160,13
   ,173,11,3,48,2,160,150,162,0,32,189,23
   7,169,52,141,2
XM 129 DATA 211,173,23,3,208,251,32,110,2
   35,32,107,234,76,227,235
MN 130 ? "          TO WRITE THE BOOT TAPE"
EB 131 ? "    INSERT CASSETTE INTO RECORDE
   R"
GI 132 ? "          PRESS RECORD AND PLAY"
UR 133 ? "  AND PRESS ANY KEY ON COMPUTER
   "
YH 200 A=USR(1536)
RO 205 ? "K"
GR 210 ? "         BOOT TAPE NOW WRITTEN"
ST 220 ? :?
LN 222 ? "TO USE:-"
WP 224 ? "BOOT IN BEFORE STARTING PROGRAM
   MING"
JM 226 ? "CSAVE/LIST/PRINT/PUT TO TAPE AS
    USUAL"
TS 228 ? "PROGRAMME WILL BE OUTPUT FASTER
   "
RT 230 ? "THAN NORMAL THUS SAVING TIME AN
   D TAPE"
TB 232 ? :?
RX 234 ? "WILL LOAD IN FASTER ON ANY 400/
   800/XL"
```

THE BOOSTER XL version continued

```
VY 127 DATA 1,3,72,173,71,2,240,26,162,8,
   32,189,201,240,19,138,72,32,5,216,104,
   170,144,242,169
IX 128 DATA 0,141,72,2,141,255,209,240,3,
   32,148,8,104,141,1,3,169,0,133,66,140,
   3,3,172,3
EY 129 DATA 3,96,186,142,24,3,169,1,133,6
   6,173,0,3,201,96,208,3,76,172,8,76,131
   ,233,76,212
JD 130 DATA 235,173,3,3,16,248,169,67,141
   ,4,210,169,4,141,6,210,32,23,236,166,9
   8,188,21,238,173
QZ 131 DATA 11,3,48,3,188,17,238,162,0,32
   ,226,237,169,52,141,2,211,173,23,3,208
   ,251,32,135,235
JW 132 DATA 32,136,234,76,4,236
MP 140 ? "          TO WRITE THE BOOT TAPE"
ED 141 ? "    INSERT CASSETTE INTO RECORDE
   R"
ZW 142 ? " PRESS RECORD AND PLAY ON CASSE
   TTE"
UT 143 ? "  AND PRESS ANY KEY ON COMPUTER
   "
YH 200 A=USR(1536)
RO 205 ? "K"
GR 210 ? "         BOOT TAPE NOW WRITTEN"
ST 220 ? :?
LN 222 ? "TO USE:-"
WP 224 ? "BOOT IN BEFORE STARTING PROGRAM
   MING"
JM 226 ? "CSAVE/LIST/PRINT/PUT TO TAPE AS
    USUAL"
TS 228 ? "PROGRAMME WILL BE OUTPUT FASTER
   "
RT 230 ? "THAN NORMAL THUS SAVING TIME AN
   D TAPE"
TB 232 ? :?
RX 234 ? "WILL LOAD IN FASTER ON ANY 400/
   800/XL"
```

EXPLORING ADVENTURES

on the Atari 48k
by Peter Gerrard
Published by Duckworth.
£6.95



An excellent book aimed at those interested in Adventures or who might like to try writing one. The book is part of a series of Exploring Adventures on ... but, apart from one or two unimportant details, has been well adapted for the Atari.

Beginning with a chapter on how Adventures came into being and where they may go in the future it goes on to give hints on how to solve commercial Adventure games before detailing how to write your own adventures in Basic. Showing you how to create your own adventures is the major aim of the book and it does this well by giving not only a step by step guide to programming but also suggestions for adventure themes and an insight into the thinking that goes on behind the programming. By using a full-blown listing of Underground Adventure, each section takes you through one part of the program including all of the major verb handling routines. All of the BASIC commands that you are likely to need for a text adventure are included and, unlike many other books, those commands which are specific to Atari Basic are included. As far as I could tell there were no obvious errors to set you off on a wild goose chase trying to use commands that the Atari does not understand. Underground Adventure is completed in full tutorial style but there are two other listings to type in which will give you further insight and ideas for creating your own programs.

One of the most interesting and unusual chapters is a series of suggested scenarios for your own adventures. Once you can program, the hardest thing about writing an Adventure is thinking of a idea that is logical and coherent. Each scenario takes a basic theme and discusses possible hazards, additional adventures within the theme and development of the story before suggesting a conclusion. The themes range from the Streets of London to Outer Space and the Wild West.

You might think that writing your own adventure is a daunting task but with each stage of the proceedure explained and with ideas provided, it really is not as difficult as you might imagine to create your own 'masterpiece'.

In conclusion an excellent book for anyone interested in writing an adventure and good value at £6.95 for over 240 pages.

IOCB'S

by Anthony Roberts

When I first started using machine code one of the first problems I encountered was what program to write. To solve this problem I looked through some back issues of computer magazines to see what other people had written. One feature that seemed to crop up fairly often was the use of IOCB's and in particular the section of CIO's. As a result I learned all that I could and finally became proficient in their use.

The name IOCB stands for Input Output Control Block and CIO stands for Central Input Output utility. As the names suggest they also allow the user to control the input from and output to various devices. The devices that are normally controlled using CIO's are cassette recorders, disk drives, printers, the screen and a few others. By changing a few parameters it is possible to send any amount of any sort of data to a device.

So what? Well if you have ever tried to do graphics in machine code or access data files on a disk or cassette or dump a screen to the printer then you will appreciate just how difficult it can be.

Those of you who are familiar with the BASIC command OPEN #n will have a head start because CIO's are exactly the same thing. If you have never come across the OPEN command then look it up in a users manual.

There are certain differences in the way CIO's are used from machine code and the way they are used in BASIC but these will become apparent as you use them. The main thing to remember is that there is no automatic error checking in machine code so if you make an error and don't check for it, all sorts of problems will arise. The most common mistake is to try and access devices that are not open or to try and open devices that are already open.

DEVICE NAMES:

These are the names used when you open a device.

E:	Screen editor (see Basic Manual)
S:	Screen graphics for graphics modes
P:	Printer (output only)
K:	Keyboard (input only)
C:	Cassette recorder
D:*.*	Disk directory
D:filename.ext	Disk files

OPENING AN IOCB

Before you can open an IOCB it must first be closed. This is to prevent errors occuring when you attempt to open an already open IOCB.

To close an IOCB, you must first choose which one you are going to work with. There are five possible choices here and they correspond to the numbers 1,2,3,4 and 5 in BASIC. In machine code, you choose the number by loading it into the 'X' register. The number you load is '#$10' for IOCB 1, '#$20' for IOCB 2 etc. When you have decided, use Listing 1 to close that IOCB.

Line 10 tells the computer which IOCB to close. Line 20 loads the accumulator with the number #$0C. This is the number which tells the routine you want to close the IOCB. Line 30 stores the number #$0C in location $342 offset by

```
00010        LDX #$10      ; IOCB #1
00020        LDA #$0C      ; COMMAND FOR CLOSE
00030        STA $342,X    ; COMMAND LOCATION
00040        JSR $E456     ; CALL OS ROUTINE
00050        LDA #$03      ; COMMAND FOR OPEN
00060        LDX #$10      ; IOCB #1
00070        STA $342,X
00080        LDA #LAB      ; LOW BYTE OF DEVICE NAME
00090        STA $344,X    ; BUFFER ADDRESS (LOW)
00100        LDA /LAB      ; HIGH BYTE OF DEVICE NAME
00110        STA $345,X    ; BUFFER ADDRESS (HIGH)
00120        LDA #$08      ; OPEN FOR OUTPUT
00130        STA $34A,X
00140        LDA #$00      ; JUST TO BE SAFE BUT NOT NEEDED
00150        STA $34B,X
00160        JSR $E456
00170        LDA #$08      ; GOING TO SEND STRING
00180        LDX #$10      ; IOCB #1
00190        STA $342,X
00200        LDA #MES      ; LOW BYTE OF MESSAGE ADDRESS
00210        STA #344,X
00220        LDA /MES      ; HIGH BYTE OF MESSAGE ADDRESS
00230        STA $345,X
00240        LDA #$FF      ; MUST BE MORE THAN MESSAGE LENGTH
00250        STA $348,X    ; BUFFER LENGTH HELD HERE (LOW)
00260        LDA #$00      ; JUST TO BE SAFE
00270        STA #349,X    ; BUFFER LENGTH HELD HERE (HIGH)
00280        JSR $E456
00290        LDA #$0C      ; CLOSE IOCB #1
00300        LDX #$10
00310        STA $342,X
00320        JSR $E456
00330        BRK           ; END OF PROGRAM
00340 LAB    .AS "E:"      ; DEVICE NAME
00350 MES    .AS "ATARI
             COMPUTERS
             ARE GREAT"
00360        .HS 9B        ; END OF LINE CHARACTER
```

Listing 1

X. Because X has the value of $10 in it the number will be stored in $352. The reason we have to use the 'X' register is because the computer uses the value in the 'X' register to decide which one to close. Line 40 calls the operating system routine that actually performs the close operation.

Now that the IOCB is closed you want to open it for a device. When you do this you need to declare the device name, which is best done by storing it in an ASCII string. The conventions I will use are those used by the SYN-ASSEMBLER but there are conversions at the end of this article for the ATARI ASSEMBLER-EDITOR. Listing 2 will open an IOCB.

The program opens IOCB 1 for the screen editor (E:). Lines 50, 60 and 70 tell the computer you want to open up IOCB 1. Line 80 is loading the accumulator with the low byte value address of the label 'LAB'. For example, if the address of the label 'LAB' was $1234 then the low byte value of the address would be #$34. Line 90 stores this value in a location where the computer can find it for later use. Lines 100 and 110 do the same thing as the two previous lines except they are loading and storing the high byte value of the address (e.g. #$12). The reason for these four lines is so that when the computer comes to perform the open it can look in locations $348 and $349 to find the address where the name of the device is located (E: is the name of the device). Lines 120 and 130 put a #$08 into #34A,X. The contents of location #34A,X tell the computer which direction the data will be travelling (i.e. to or from the device). In this case the 8 means we will be sending data. Lines 140 and 150 are just to be tidy because the 0 in the location has no effect on this particular IOCB. Line 160 calls the routine to do the open.

LOCATION	USED FOR	POSSIBLE VALUES	RESULT
$E456	Calls the routine to act on IOCB	None	Execution of IOCB
$342	Sets the way the IOCB will be used	3	Open the IOCB
		12	Close the IOCB
		7	Get binary record
		11	Put binary record
		4	Input string
		8	Output string
$344	Low byte value of buffer address	0 - 255	Tells the computer the low byte address of where to get or put data
$345	High byte value of buffer address	0 - 255	Same as above only High byte
$348	Low byte value of buffer length	0 - 255	Sets the amount of data to be moved (low byte)
$349	High byte value of buffer length	0 - 255	Same as above only high byte
$34A	Sets the direction of data transfer	4	Read data
		8	Write data
		12	Read and Write data
		6	Open for directory
$34B	Used mainly for graphics	0 - 255	See graphics table

USING THE IOCB

Now that the IOCB is open you want to do something with it. In this case because we put a #$08 into $34A,X we want to send data. To send data to the device we use the routine in Listing 1.

The routine will print the message on the screen. Lines 170 to 190 are putting a #$08 into command location ($342). The #$08 tells the computer to expect an undetermined amount of data. This is like printing a string in BASIC, because you don't need to know how long the string is to print it. The computer will stop printing data when it reaches a #$9B. Lines 200 to 230 are instructing the computer how much data to send. Because we have used a #$08 in $342,X the number in these two locations only has to be more than we want to send. If you are sending a known amount of data then these two locations should contain this number. $344,X is the low byte and $345 is the high byte. Line 280 executes the operation.

If you are not familiar with the low byte, high byte notation it simply means the storing of numbers greater than 255 in two consecutive locations. Because the maximum value in one location is 255 we have to store numbers greater than this in a special way. The high byte location contains the number of 256's in the number and the low byte location contains the number of 1's in the number. If you wanted to store the number 1027 you would place a 4 in the high byte (4*256=1024) and a 3 in the low byte (3*1=3). The result is 1024+3=1027. The same principle is used when storing an address.

When you have finished writing the program you must close the IOCB by using the first part again.

Now the best thing to do is to practice sending or receiving data from other devices such as the printer. You can have more than one device open at a time so that you can read data from a disk using one IOCB and print it to the screen using another. Have fun!

continued overleaf

Some conversions

SYN-ASSEMBLER	ATARI ASSEMBLER-EDITOR
#LAB	LAB&255
/LAB	LAB/256
.AS "ATARI etc."	.BYTE "ATARI etc."
.HS 9B	.BYTE #$9B

With the Atari Editor you will need a *=$4000 at the start of the program.

I.O.C.B's *continued*

GRAPHICS TABLE:

The following program will open the screen for graphics mode 2 and print a message.

```
00010                 ;GRAPHICS MODE 2 PROGRAM
00020                 ;
00030       LDX #$10  ; CLOSE IOCB #1
00040       LDA #$0C
00050       STA $342,X
00060       JSR $E456
00070       LDA #$03  ; OPEN IOCB #1
00080       LDX #$10
00090       STA $342,X
00100       LDA #SNAME ; DEVICE NAME (LOW)
00110       STA $344,X
00120       LDA/SNAME ; DEVICE NAME (HIGH)
00130       STA $345,X
00140       LDA #$18  ; SPLIT SCREEN + OUTPUT
00150       STA $34A,X
00160       LDA #$02  ; GRAPHICS MODE
00170       STA $34B,X
00180       JSR $E456
00190       LDA #$11  ; PUT BINARY RECORD
00200       LDX #$10
00210       STA $342,X
00220       LDA #$06  ; AMOUNT OF DATA TO SEND (LOW)
00230       STA $348,X
00240       LDA #$00  ; AMOUNT OF DATA TO SEND (HIGH)
00250       STA $349,X
00260       LDA #WORD ; LOW BYTE ADDRESS OF MESSAGE
00270       STA #344,X
00280       LDA/WORD ;HIGH BYTE ADDRESS OF MESSAGE
00290       STA #345,X
00300       JSR $E456
00310       BRK       ; END OF PROGRAM
00320SNAME  .AS "S:"  ; DEVICE NAME
00330WORD   .AS  "MODE 2"*
```

When the graphics screen is opened the mode number goes into location $34B,X. Location $34A,X contains details of the type of screen you want i.e. split screen configuration. The diagram below shows how to obtain the different types of screen.

128	64	32	16	8	4	2	1
		C	S	W	R		

If bit 'C' is set (i.e. equal to 1) then when the screen is opened the current display will not be cleared.

If bit 'S' is set then the screen will be set up for a split screen arrangement. This is the same as if you opened a screen in BASIC without putting the '+16' on the end.

If bit 'W' is set then this instructs the screen to expect data to be sent to it. This is set when you want to do 'PLOTs' and 'DRAWTOs'.

If bit 'R' is set then the screen will be set up so that you can get data from the screen. This is used when you wish to do a 'LOCATE' statement. ●

The Wanderer

continued

```
WE 2190 ? "are available:"
NX 2200 ? :? "1. N-North >  These keys ch
   ange the"
VI 2210 ? "2. E-East  >  direction you fa
   ce, but"
XX 2220 ? "3. S-South >  not the directio
   n the"
RS 2230 ? "4. W-West  >  joystick moves y
   ou."
LO 2240 ? :? "Press START to continue"
WI 2250 IF PEEK(53279)<>6 THEN 2250
HY 2260 ? "K":? E$:?
VV 2270 ? "5. Q-Quit-with option for new
    game."
DB 2280 ? :? "6. M-Maze-displays maze fro
   m above":? "-this can only be done twi
   ce in each"
HJ 2290 ? "maze, and adds 5 steps to your
    score!"
CO 2300 ? :? "7. H-Help-gets your positio
   n relative to the exit. Can only be us
   ed 3 times"
LR 2310 ? "in each maze!"
RT 2320 ? :? "8. I-Instructions (as here)
   ."
AK 2330 ? :? "The aim of course is to esc
   ape in as"
AJ 2340 ? "few moves as possible."
AD 2350 ? :? "Good luck!"
LW 2360 ? :? "Press START to continue"
AE 2370 IF PEEK(53279)<>6 THEN 2370
BE 2380 RETURN
```
□

CSAVE

FIRST STEPS

Write to Mark Hutchinson at P.O.BOX 123, BELFAST, BT10 0DB

A-Z OF BASIC PART 2

FOR (F.)

This is used with NEXT and, sometimes, with STEP to form loops.

Example: 10 FOR A=1 TO 10: ? A: NEXT A

A will start off as 1, the current value of A will be printed, and A will then be incremented by 1 to equal 2. This will repeat until A=10 when the program will print this value and finish. STEP changes the size of the increment and, if it is a negative number, will also decrement the value.

Examples: 10 FOR S=0 TO 255 STEP 5: SO.0,S,10,10: NEXT S
10 FOR S=255 TO 0 STEP-5: SO.0,S,10,10: NEXT S

If no other commands are included in the FOR/NEXT loop, then the computer will run the loop while doing nothing. This is usually termed a 'wait' or 'timing' statement. You can have a loop inside a loop (termed 'nesting').

Example: 10 FOR S=250 TO 0 STEP-10: SO.0,S,10,10: FOR WAIT =1 TO 50: NEXT WAIT: NEXT S

It is not recommended to use too many nested loops. Sometimes an error 13 will occur (no matching FOR statement). This can be caused by using the same variable too many times. Just change the variable (say, S to SND) to clear this. Of course, you will need to check that your loops do coincide, that the first FOR corresponds with the last NEXT. In the last example if you change NEXT WAIT: NEXT S to NEXT S: NEXT WAIT it will not run properly.

This can be a very powerful statement in graphics. Instead of a series of PLOT/DRAWTO, it is possible to use a FOR/NEXT loop, incrementing X or Y, and one PLOT/DRAWTO saving lots of memory.

Example: 10 GR.8: C.1: FOR X=0 TO 155 STEP 5: PL. X,0: DR. X,319: NEXT X

FRE

This will test for, and return, the amount of free user RAM in bytes. It takes the form of ? FRE(0), where 0 is a dummy variable. It can also be used in the deferred mode.

Example: 10 IF FRE(0)<X THEN ? FRE(0);" BYTES LEFT"

GET (GE.)

This is usually used in graphics with the POSITION statement and will return the data under the cursor and place it in a variable. This will be a character or colour, depending on the graphics mode. NOTE: If you wish to PRINT after GET it is necessary to PUT the data back, as quite often the pixel value has been corrupted. By OPENing a channel, it is possible to read a byte from a file designated by the channel and store it in the variable. This is normally done when retrieving screen displays or other large chunks of data.

Example: 10 GET #1,X

GOSUB (GOS.)

This statement will send the program to a sub-routine. This is a self contained routine outside the main program. The sub-routine must finish with RETURN to go back to the main sequence. Care must be taken when using nested GOSUBs or a GOTO in the routine. GOSUB uses the system stack to remember where to return to. POP will clear the stack if the sub-routine has not been allowed to finish normally, but this is a sign of bad programming and, after debugging, is not recommended. Calling an often used routine through GOSUB will save memory, but you must use it often to be of value.

Example: 10 GOSUB 100: GOSUB SOUND1

GOTO (G.)

Similar to GOSUB but does not need a RETURN. Again, be careful of creating endless loops with too many GOTOs.

Example: 10 GOTO 100: GOTO SOUND1

GRAPHICS (GR.)

Used to select one of the 16 graphic modes. Apart from GR.0, these modes will have a text window at the bottom unless 16 has been added to the GR. number. By adding 32 to the GR. mode, you can set up the text window without clearing the screen or switching off the sound.

Examples: GRAPHICS 0
GR.1+16
GR.17
GR.39
GR.ZERO

GRAPHICS

IF

A conditional statement used with THEN. When the IF part is true, the THEN part is executed. If it is not true, the THEN part is ignored. If any other commands follow IF/THEN on the same command line, they will only be executed when the conditional statement is true. Nesting can occur in this statement.

Example: 10 IF X=5 THEN ? "5"
20 IF X=5 THEN IF Y=5 THEN GOTO 100

In line 10 X must equal 5 for the PRINT to occur. In line 20 (nesting) both X and Y must equal 5 for the GOTO to occur. NOTE: GOTO or GOSUB is not necessary in this statement, as a line number or reference would suffice.

Example: 10 IF X=5 THEN 100

Make sure that there is a THEN for each FOR

by Mark Hutchinson

INPUT (I.)

This statement looks for a keyboard response from the user. It will place this response into a variable or string, to be used later in the program. Unfortunately the program will halt until this response is entered with RETURN. Several responses to one INPUT can be entered at once by using commas. When used with an IOCB number(#) it will request data (string or numbers) from a specified device, providing that IOCB# has been OPENed first.

Example: 10 INPUT X
INPUT A$
INPUT X,A$,Y
INPUT #2,A$

Warning: An input without a variable may not cause an error report. Also, an input of more than 128 bytes will overwrite the start of page 6, the so called 'safe area'.

INT

This returns the integer (the whole number preceding the decimal point) and sign of a number. Unlike calculators, it will return the whole number nearest to the complete number given.

Example: A=INT(3.44): REM *** Returns 3
A=INT(-3.99): REM *** Returns -4

LEN

This will give the length of a string in bytes. Until something has been stored in a string, its length will be 0.

Example: A$="PAGE 6": ? LEN(A$): REM *** Will return 6

LET (LE.)

This will define a variable or variable name. It can be left out (implied LET). However, if you wish to use a command word as a variable, you must use LET.

Example: LET X=1.2
X=1.2: REM *** Implied LET
LET SOUND=1000: REM *** Compulsory LET

LIST

LIST (L.)

This is a way of saving a program in a form that can be loaded (using ENTER) without clearing memory, either to cassette or to disk. LIST by itself will list out the resident progam, to the screen, in full. If line numbers are specified then only those lines will be listed. Likewise, if the printer is specified the program (or required lines) will be printed.

Example: LIST "C: "
LIST "D: PART2.BAS"
LIST 10
LIST 20,100
LIST "P."
LIST "P.",10,50

LOAD (L.)

This will load a program from disk into RAM. It will clear any existing memory and will need the command RUN to start the program.

Example: LOAD "D: PART1.BAS"

LOCATE (LOC.)

For some reason, this is seldom seen now in programs, maybe because people do not understand it. It is really quite simple.

Example: LOCATE X,Y,Z

This will position the cursor (visible or invisible) at point X,Y and place the information stored there in the variable Z. This will be a number, either 0-255 for a text character or 0-4 for a colour. This is the same as using POSITION X,Y: GET #6,Z. The only problem is that a PRINT or GET after LOCATE may corrupt the data under the cursor. You may need to reposition the cursor and PUT the data back.

LOCATE

LOG

This will return the natural logarithm of a variable or expression.

Example: L=LOG(55.2)

LPRINT (LP.)

This will open a channel to the line printer and will print in direct or deferred modes. As with ?, LP. by itself will skip a line.

Example: LP."PRINTER"

NEW

This will clear the contents of RAM in either direct or deferred mode. Unfortunately it will clear all dimensioned tables.

NEXT (N.)

Used with FOR, please refer to that section.

NOT

A logical operator. It will return a 1 if the result is not true. Be careful of ? A=NOT B, it will put the computer to sleep. Be sure to use a space after NOT as confusion could occur with NOTE.

Example: A=NOT E

NOTE (NO.)

This is used in disk operations to open a channel to the drive and store the current sector and byte in the variables. The DOS manual gives an example program of this command. The first variable is the IOCB#, the second is the sector, and the third is the byte.

Example: NOTE #2,SEC,BYTE

ON

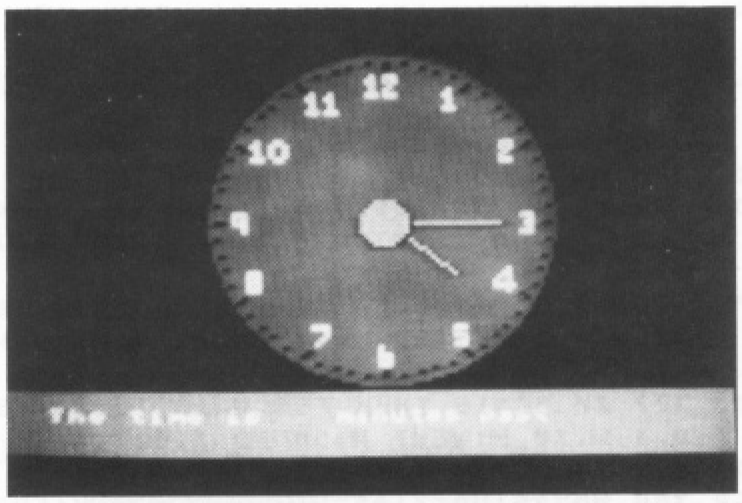
Used mainly with GOSUB or GOTO, but can be used with other commands. When the variable value is known, the program will go to the subroutine that corresponds to the value.

Example: 10 ON X GOTO 100,200,300,400

If X=3 then the program will branch to the third choice, ie. line 300. This will be a topic for 'First Steps' later in the year.

continues next issue

TICK TOCK



by A. Mills

What time is it? If you have young children who are learning to tell the time, Tick Tock will help them learn with the chance to hear the chimes of the clock (worth typing the program in for!) and see a rainbow when they get it right.

The are several options which are fully prompted on screen and four levels from whole hours to quarter hours, every five minutes or single minutes. The chimes can be switched on or off and you can choose whether or not the correct time is shown in the event of a wrong answer. When responses are required there is no need to press RETURN. The program will expect double figures to be entered when required and these will not show on screen until two figures are typed. The program gives 10 goes but this can be changed by altering the loop in line 210.

Type it in, it is worth seeing even if you don't have any children. If you do it is an excellent way to teach them the time in the old fashioned way - before the 24 hour clock that is, not before computers!

```
EI 1 REM ********************************
NG 2 REM *          TICK TOCK           *
YU 3 REM *        by  A.MILLS           *
EB 4 REM * ---------------------------- *
IY 5 REM *  PAGE 6 MAGAZINE - ENGLAND   *
EN 6 REM ********************************
NM 7 REM
BG 10 GRAPHICS 0:POSITION 5,5:? "Please
   wait...";:GOSUB 500
SM 30 HR=2:MINS=0:COL=3:S=0:GOSUB 3000
OE 35 GOSUB 10000:FOR W=1 TO 500:NEXT W:P
   OKE 54286,64
DV 60 FOR W=1 TO 600:NEXT W
TZ 70 HD=0:VD=0:A$=B$:GOSUB 3500
DZ 80 HD=3:VD=1:A$="Do you wish the chime
   s on  ( Y/N ) ":GOSUB 3500
CD 90 OPEN #1,4,0,"K:":GET #1,REP:CLOSE #
   1:? CHR$(REP);:SC=0
SG 100 IF REP=ASC("Y") THEN S=0:GOTO 130
MF 110 IF REP=ASC("N") THEN S=1:GOTO 130
TS 120 ? "← ←";:GOTO 90
IZ 130 HD=0:VD=0:A$=B$:GOSUB 3500
WN 140 HD=4:VD=0:A$="Do you want to try
   1) Whole hours":GOSUB 3500
BP 150 HD=24:VD=1:A$="2) Quarter hours":G
   OSUB 3500
TI 160 HD=24:VD=2:A$="3) Five minutes":GO
   SUB 3500
EH 170 HD=24:VD=3:A$="4) Every minute":GO
   SUB 3500
DQ 180 HD=0:VD=3:A$="Your choice ( 1-4 )"
   :GOSUB 3500
QJ 190 OPEN #1,4,0,"K:":GET #1,REP:CLOSE
   #1:? CHR$(REP);:REP=REP-48
SV 200 IF REP<1 OR REP>4 THEN ? "← ←";:G
   OTO 190
UK 202 A$="Do you want to see the answer
   s?":GOSUB 3500
QF 203 OPEN #1,4,0,"K:":GET #1,SEE:CLOSE
   #1:? CHR$(SEE);
DF 204 IF SEE=ASC("Y") THEN SEE=1:GOTO 21
   0
VC 206 IF SEE=ASC("N") THEN SEE=0:GOTO 21
   0
GH 208 ? "← ←";:GOTO 203
HV 210 FOR GOES=1 TO 10
JC 212 HD=0:VD=0:A$=B$:GOSUB 3500
FZ 214 COL=1:IF FLG=1 THEN FLG=0:MINS=60-
   MINS:HR=HR-1
RW 215 GOSUB 3000
SH 216 IF REP=1 THEN MINS=0
HQ 217 IF REP=2 THEN MINS=INT(RND(0)*4)*1
   5
EZ 218 IF REP=3 THEN MINS=INT(RND(0)*12)*
   5
YQ 219 IF REP=4 THEN MINS=INT(RND(0)*60)
BF 220 HR=INT(RND(0)*12)+1
IX 222 COL=3:GOSUB 3000
XW 224 ON REP GOSUB 4000,4600,4600,4600
KL 225 IF COR=1 THEN HD=20:VD=3:A$="WELL
   DONE! CORRECT!":GOSUB 3500:TEP=INT(RND
   (0)*2)+1
HB 227 NOS=INT(RND(0)*14)+1:IF NOS/2<>INT
   (NOS/2) THEN 227
LT 230 IF COR=1 THEN POKE 54286,192:FOR W
   =200 TO 10 STEP -TEP:SOUND 1,W,NOS,15:
   NEXT W:SOUND 1,0,0,0
RT 232 IF COR=1 THEN SC=SC+1:POKE 54286,6
   4:GOTO 300
IH 240 IF SEE=0 THEN POKE 559,0
XF 250 SOUND 0,200,12,15:SOUND 1,200,12,1
   5:FOR W=1 TO 300:NEXT W
RR 260 SOUND 0,236,12,15:SOUND 1,236,12,1
   5:FOR W=1 TO 500:NEXT W
DV 270 SOUND 0,0,0,0:SOUND 1,0,0,0
RB 280 ? "THAT'S WRONG"
CX 285 IF SEE=1 THEN GOSUB 5000
RM 290 POKE 559,34
HT 300 NEXT GOES
IX 310 HD=0:VD=0:A$=B$:GOSUB 3500
QJ 320 IF SC<4 THEN A$="Not too good, try
    again."
```

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PK 330 IF SC>3 AND SC<7 THEN A$="Thats qu
   ite good, try some more."
SM 340 IF SC>6 AND SC<10 THEN A$="Thats v
   ery good."
RM 350 IF SC=10 AND REP-48<4 THEN A$="Tha
   ts excellent, try the next level."
LM 355 IF SC=10 AND REP-48=4 THEN A$="   D
   o you really need to be using this    t
   utorial programme"
OZ 360 HD=0:VD=0:GOSUB 3500
BZ 370 HD=0:VD=2:A$="You scored      out of
    10":GOSUB 3500:POKE 656,2:POKE 657,11
   :? SC
FU 375 IF SC=10 THEN POKE 54286,192:FOR W
   =100 TO 10 STEP -0.5:SOUND 1,W,10,W:NE
   XT W
DJ 377 IF SC=10 THEN FOR W=10 TO 100:SOUN
   D 1,W,10,W:NEXT W:SOUND 1,0,0,0
DC 379 IF SC=10 THEN POKE 54286,64
GP 380 HD=25:VD=3:A$="Press a key":GOSUB
   3500
OQ 390 OPEN #1,4,0,"K:":GET #1,KEY:CLOSE
   #1
RN 400 GOTO 70
RA 490 GOTO 490
OV 500 R=39:DIM C(R),TYPE$(1),A$(160),B$(
   160)
QC 505 FOR W=1 TO 500:NEXT W:POKE 559,0
KJ 510 FOR X=0 TO R
OQ 520 C(X)=SQR(R*R-X*X)
LV 530 NEXT X
SS 540 GRAPHICS 7:DEG :SETCOLOR 0,3,4:COL
   OR 1
RU 545 GOSUB 2000
SA 547 POKE 559,34
KR 550 FOR X=0 TO R
XR 560 PLOT 79+X,39-C(X):DRAWTO 79+X,39+C
   (X)
BD 570 PLOT 79-X,39-C(X):DRAWTO 79-X,39+C
   (X)
MF 580 NEXT X
DA 590 PLOT 118,35:DRAWTO 118,43:PLOT 40,
   35:DRAWTO 40,43
YJ 595 COLOR 0
JM 600 FOR X=0 TO 360 STEP 6
XH 610 PLOT 79+SIN(X)*37,39-COS(X)*37
LU 620 NEXT X
YA 625 RESTORE 670
PK 630 FOR A=1 TO 12
JH 640 READ X,Y
TH 650 PLOT X,Y
DG 660 NEXT A
OJ 670 DATA 96,8,110,21,115,39,110,56,97,
   70,79,75,62,70,48,57,43,39,48,22,61,8,
   79,3
NS 680 RESTORE 730:SETCOLOR 1,3,10:COLOR
   2
MV 690 READ TYPE$,X,Y
LJ 700 IF TYPE$="E" THEN GOTO 860
LG 710 IF TYPE$="P" THEN PLOT X,Y:GOTO 69
   0
DW 720 DRAWTO X,Y:GOTO 690
DB 730 DATA P,92,9,P,93,8,D,93,12,P,92,12
   ,D,94,12
CF 740 DATA P,105,21,P,105,20,D,107,20,P,
   107,21,D,105,23,P,105,24,D,107,24
WA 750 DATA P,110,41,D,112,41,D,112,37,D,
   110,37,P,111,39
TZ 760 DATA P,107,50,D,107,55,P,108,54,D,
   104,54,P,104,53,D,106,51
KT 770 DATA P,97,64,D,95,64,D,95,66,D,97,
   66,D,97,68,D,95,68
KP 780 DATA P,78,69,D,78,73,D,80,73,D,80,
   71,D,78,71
IO 790 DATA P,63,64,D,66,64,P,66,65,D,66,
   66,D,64,68
VT 800 DATA P,49,51,D,49,55,D,51,55,D,51,
   51,D,49,51,P,50,53
OU 810 DATA P,48,41,D,48,37,D,46,37,D,46,
   39,D,48,39
NO 820 DATA P,51,20,D,51,24,P,50,24,D,52,
   24,P,50,21,P,54,21,D,54,23,P,55,24,P,5
   6,24,P,56,20,P,55,20,P,57,21,D,57,23
CE 830 DATA P,63,9,D,63,13,P,62,13,D,64,1
   3,P,62,10,P,67,9,D,67,13,P,66,13,D,68,
   13,P,66,10
IB 840 DATA P,76,5,D,76,9,P,75,9,D,77,9,P
   ,75,6,P,81,9,D,79,9,P,79,8,D,81,6,P,81
   ,5,D,79,5,P,79,6
FQ 850 DATA E,0,0
BD 860 SETCOLOR 2,0,6:COLOR 3
TC 870 FOR X=0 TO 5
EV 880 PLOT 79+X,39-SQR(28-X*X):DRAWTO 79
   +X,39+SQR(28-X*X)
IV 890 PLOT 79-X,39-SQR(28-X*X):DRAWTO 79
   -X,39+SQR(28-X*X)
LT 900 NEXT X
QC 905 POKE 752,1:POKE 54286,192
BR 910 POKE 656,0:POKE 657,13
XF 920 ? "ATARI TICK TOCK"
UK 930 POKE 657,13:? "ATARI TICK TOCK"
NK 940 POKE 657,13:? "ATARI TICK TOCK"
YG 950 POKE 657,13:? "ATARI TICK TOCK";
GE 954 A$(1)=" ":A$(160)=" ":A$(2)=A$
JI 956 B$=A$
ZR 960 RETURN
UA 2000 DL=PEEK(560)+256*PEEK(561)
XN 2005 POKE DL+3,205
MW 2010 FOR J=6 TO 84
IP 2020 POKE DL+J,141
FK 2030 NEXT J
MS 2035 RESTORE 2070
HX 2040 FOR J=0 TO 26
UO 2050 READ A:POKE 1536+J,A
FT 2060 NEXT J
RJ 2070 DATA 72,173,50,6,141,10,212,141,2
   2,208,238,50,6,238,50,6,201,160,208,5,
   169,0,141,50,6,104,64
AB 2080 POKE 512,0:POKE 513,6
AC 2100 RETURN
WW 3000 MA=MINS*6:HA=INT(HR*30+MINS/2)
PI 3010 COLOR COL:PLOT 79+SIN(HA)*7,39-CO
   S(HA)*7:DRAWTO 79+SIN(HA)*20,39-COS(HA
   )*20
VV 3020 PLOT 79+SIN(MA)*7,39-COS(MA)*7:DR
   AWTO 79+SIN(MA)*26,39-COS(MA)*26
HI 3030 IF S=1 OR COL=1 OR MINS<>0 THEN 3
   120
WE 3040 VOLD=0.22
QD 3050 FOR BELL=1 TO HR
AM 3060 FOR LOOP=15 TO 1 STEP -VOLD
MY 3070 SOUND 0,7,2,LOOP:SOUND 1,8,6,LOOP
SV 3080 VOLD=VOLD-0.1*X:NEXT LOOP
PW 3090 FOR W=1 TO 50:NEXT W
TX 3100 SOUND 0,0,0,0:SOUND 1,0,0,0
YM 3110 VOLD=0.22:NEXT BELL
AJ 3120 RETURN
II 3500 POKE 656,VD:POKE 657,HD:? A$;:RET
   URN
HS 4000 MINS=0:HD=2:VD=1:A$="The time is
      O'Clock":GOSUB 3500
DW 4050 OPEN #1,4,0,"K:":GET #1,ANS:ANS=A
   NS-48:IF HR>9 THEN GET #1,ANS2:ANS=10*
   ANS+ANS2-48
```

→

TICK TOCK

```
NE 4060 CLOSE #1
BS 4065 IF ANS<1 OR ANS>12 THEN ? "◰";:GO
   TO 4050
MK 4070 HD=14:VD=1:A$=STR$(ANS):GOSUB 350
   0
GP 4080 IF ANS=HR THEN COR=1:GOTO 4090
YA 4085 COR=0
BD 4090 RETURN
VB 4600 IF MINS=0 THEN GOTO 4000
MQ 4610 IF MINS<31 THEN A$="The time is
     minutes past":HD1=30
MW 4620 IF MINS>30 THEN A$="The time is
     minutes to":HD1=28:MINS=60-MINS:HR=H
   R+1:FLG=1:IF HR=13 THEN HR=1
VB 4630 HD=2:VD=1:GOSUB 3500
UJ 4640 OPEN #1,4,0,"K:":GET #1,ANS:ANS=A
   NS-48:IF MINS>9 THEN GET #1,ANS2:ANS=1
   0*ANS+ANS2-48
CJ 4650 CLOSE #1:IF ANS<0 OR ANS>59 THEN
   ? "◰":GOTO 4640
KF 4670 ANSM=ANS:HD=14:VD=1:A$=STR$(ANSM)
   :GOSUB 3500
GA 4680 OPEN #1,4,0,"K:"
GL 4690 GET #1,ANS:ANS=ANS-48:IF HR>9 THE
   N GET #1,ANS2:ANS=10*ANS+ANS2-48
MU 4700 ANSH=ANS:CLOSE #1
QK 4710 IF ANS<0 OR ANS>12 THEN ? "◰":GOT
   O 4680
QO 4720 HD=HD1:VD=1:A$=STR$(ANSH):GOSUB 3
   500
AI 4730 IF ANSM=MINS AND ANSH=HR THEN COR
   =1:GOTO 4750
XI 4740 COR=0
BF 4750 RETURN
BA 5000 IF MINS=0 THEN GOTO 5050
SH 5010 IF HD1=30 THEN A$="The time is
    minutes past":A$(13,14)=STR$(MINS):A$
   (LEN(A$)+2)=STR$(HR):GOTO 5060
MN 5020 IF HD1=28 THEN A$="The time is
    minutes to":A$(13,14)=STR$(MINS):A$(L
   EN(A$)+2)=STR$(HR):GOTO 5060
ZA 5050 A$="The time is    O'Clock":A$(13
   ,14)=STR$(HR)
DD 5060 ? A$
YM 5070 FOR I=1 TO 500:NEXT I
BB 5080 RETURN
ZY 10000 REM VBI TICK TOCK
HS 10005 RESTORE 10040
JR 10010 FOR LOC=1721 TO 1786
XO 10020 READ BYTE:POKE LOC,BYTE
EU 10030 NEXT LOC
SB 10040 DATA 238,254,6,173,254,6,201,10,
   240,19,201,11,240,33,201,60,240,16,201
   ,61,240,25,201,100,240,32,76,248,6
LS 10050 DATA 169,150,76,221,6,169,250,14
   1,6,210,169,168,141,7,210,76,248,6,169
   ,0,141,7,210,141,6,210,76,248,6,169,0
IR 10060 DATA 141,254,6,76,98,228
TY 10070 DIM SET$(11)
DD 10080 SET$="h█9█/█\ \◘♦"
TO 10090 Q=USR(ADR(SET$))
DA 10100 RETURN
```

THE SOFTWARE REVIEWS

FRUIT SALAD
P.F. Software
16k cassette

Another bargain game at £2.95 but perhaps not quite as strong as others from the same company. FRUIT SALAD is basically the Mastermind game in which you have to guess a sequence of pegs by deduction from clues given as to how close your previous guess was. Mastermind has been the subject of many computer translations but this is probably the best I have seen. Instead of plain coloured pegs, you have different fruits to choose from and the whole screen with a redefined character set looks very good. The game is played entirely with the joystick and there are several beginning options including 3 or 5 fruits, blank spaces and 1 or 2 players. Mastermind is well known now but still makes an interesting game and is a change from the usual arcade action. Mastermind as a game is not particularly dynamic but this version is very well done and at only £2.95 how can you go wrong?

Reviewed by Les Ellingham

ASYLUM ... Screenplay Inc. ... 48k disk/cass.

Asylum is set in the place that most Adventurers eventually end up! Your task is simply to escape. The Asylum is basically one massive maze of corridors with numerous doors which you must try to unlock using different items. Many of the doors reveal empty rooms but others have objects in them or are occupied by the inmates or keepers of the Asylum. Collecting various objects you go about the adventure in the normal way.

The game allows multiple sentences to be used such as OPEN THE DOOR THEN GET BOX or UNLOCK THE DOOR WITH KEY. OPEN IT. ENTER DOOR. Generally using multiple commands will save you a lot of time especially when going in and out of rooms. The instruction manual gives very little help regarding the game other than to explain the use of the vocabulary. If you wish you can press the OPTION button to view all of the words recognised by the program and as some of these are pretty obscure you may be forced into using this facility. There are four full screens of recognised words, each three columns across.

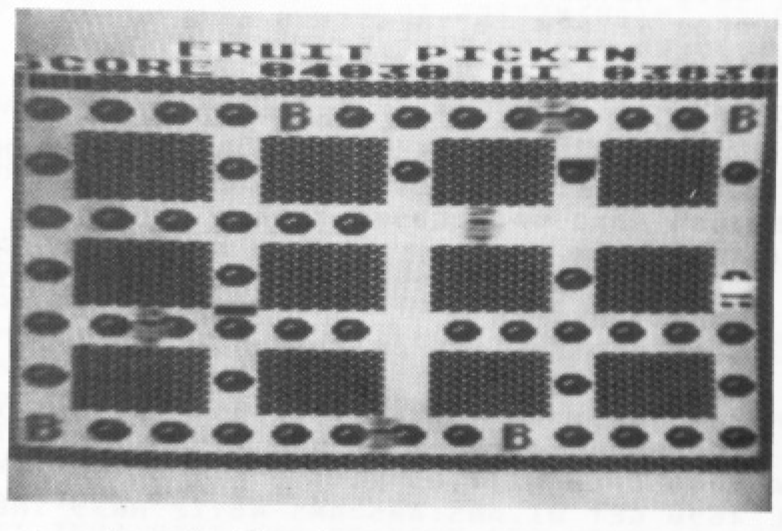
The maze is fully animated and is very reminiscent of WAY OUT. Your progress through the maze is controlled by using the four arrow keys which control all movement. As you turn to left or right or face about the maze scrolls across the screen giving a very impressive sense of direction. In the corridors the graphics are just grey walls with occasional objects in boxes on the floor but high resolution pictures are revealed whenever you enter a room. Text occupies a few lines at the bottom of the screen although the graphics can be switched out for more text. If you want a sneak preview of the graphics there is a 'slide show' which gives you a preview of some of the rooms you will find in your travels. Although this may seem to some too much like cheating it does give you a good incentive to go on and there are many more rooms.

Initially I was not particularly interested in Asylum as most animated graphics adventures tend to offer graphics at the expense of the plot but I quickly became hooked. It represents one of the the very best forms of graphics adventure and contains plenty of puzzles to solve in the classic style. The slide show is an excellent feature giving a few hints about what you need to find to leave the Asylum and overall it uses the Atari's capabilities to excellent effect with good scrolling action in the corridors and high-res pictures in the rooms. Add to that text adventure style puzzles and the Asylum is a place you may well wish to visit!

FRUIT PICKIN' ... P.F. Software ... 16k cassette

If you have read previous reviews in PAGE 6 of programs from P.F. Software you might think that we have a vested interest. Not true, it's simply that they keep coming out with budget priced software that offers excellent value for the little money you have to spend.

Latest to be released is FRUIT PICKIN' which sees P.F. Software delve into the use of lots of machine code for the first time. FRUIT PICKIN' is a Pac Man style game in which you must go round the maze picking up various fruits on each level. 'Enemies' bounce from side to side in smooth scrolling action along the horizontal lanes whilst in the higher levels 'elevators' rise and fall in certain of the vertical lanes. The enemies are different on each level and include such wierd and wonderful things as telephones, mugs of tea, cheeseburgers and C64 signs! All of these are extremely well designed Players as is your character who walks and turns in each direction. There are seven levels of increasing difficulty with the seventh level 'a nightmare' according to the author.



FRUIT PICKIN' is a simple game but is well written, challenging and addictive. At £2.95 you won't find better value anywhere and if you look with envy at the hundreds of cheap games for other micros then buy this. It is much better than most of them.

You don't get fancy colour inlays or fancy protection techniques with P.F. Software but then you don't pay an extra £5 for them!

Beyond ATARI

A series by John J. Smith looking at wider aspects of Atari computing

John J. Smith, winner of last year's Readers Poll begins a new series with this issue looking at the wider aspects of computing.

SPEECH ... THE FINAL FRONTIER?

User-friendly is a term being thrown around at the moment to describe how easy computers are to use but that is not how I interpret this phrase. Imagine crawling out of your bed in the morning and hearing a warm affectionate voice say "Good morning. Did you sleep well? The kettle has boiled and the tea is ready. I await your instructions". Later when you sit down at the keyboard instead of the word READY a warm male or female voice (your choice) says "What are we going to do today? Before we start I must tell you that the office called to say that machine number 27 is on the blink again. I have informed the repair man and he should be there just after lunch". The computer would then stay quiet whilst you got on with your writing or programming unless you asked it a question and wanted a verbal reply. Now that's what I call User-friendly!

You may think that the above example is far fetched but speech synthesis has come a long way over the past 5 years and although they still have some way to go there are now devices available which are quite intelligible provided they are programmed properly.

In 1978 I did some manual searching of library material for information on speech synthesis and speech recognition (although I have never been involved in the hardware for this purpose) and PAGE 6 readers may be interested to know that the earliest reference I could find was dated 1952 in the Journal of Accoustic Society of America Vol.24. However I understand that North Staffordshire Polytechnic did a study in 1973 and that references have been found on speech synthesis dating back to 1779(!) but these must have been mechanical and are therefore hardly relevant today. Nevertheless it is interesting that even with today's technology it is still not perfected. It seemed at the time I was looking into this, and is probably still true today, that more material was available on speech synthesis - that is to get a computer to speak - than on speech recognition - getting a computer to understand.

One interesting item was the work being carried out by Sperry Gyroscope Inc. in the U.S.A. They had apparently built a device called SCEPTRON which stands for Spectral Comparative Pattern Recogniser. Other companies were working on this project as well for the U.S. Navy and surprisingly the device was used to try and understand the 'speech' of Dolphins. An article can be found on this in Radio Electronics magazine (U.S.A.) April 1964.

RCA and others were working on a mechanical interface to change speech into a typewritten message in 1962 and Japan were working on a transistorised multilingual speech to typewriter message system also in 1962. In 1963 the reverse - written messages to speech - was being worked on.

People have studied and experimented for many years to make machines that talk but it is only with the advent of the computer and in particular the large scale intergrated circuit that speech synthesis has been available to the home user in a reasonable size package and at reasonable cost.

Texas Instruments took the rest of the industry by surprise when it brought out a toy called Speak & Spell and although it appeared to be an expensive toy at the time (was it really 7 years ago?) it was a miracle of modern technology. Several people who were already into computing as a hobby bought one only to discover that Texas would not provide any information on the chips nor would they sell them on their own. Personally I think that was a big mistake as, given the ingenuity of some hobbyists, I feel that this subject could have advanced even quicker.

FURTHER AHEAD

For many years I have been saying that one day it would be possible to dial up anything that can be read, watched or listened to. If you can now download a piece of software or a news item (via Teletext) it will not be long before you can get a print of that book you wanted or that pop tune or the latest film, all by dialling a phone number and downloading it. Now I am not talking about recording the data on disk or tape or any other mechanical device which must be subject to wear and tear but direct into computer memory. Before long, with the cost per bit of memory coming down as they pack more and more into each chip, I think we shall see incredible amounts of non-volatile memory being used in our computers and peripherals. We may gasp at hearing that the latest micro has half a megabyte of RAM but as we get used to more RAM remember that Operating Systems get more sophisticated with 68k Operating Systems now becoming commonplace. If we want instant recall of what we want when we want it, then tens of thousands of megabytes are going to be needed and probably several dedicated 32-bit chips processing in parallel. Looking even further ahead a data highway could be built into new houses controlling all our needs from straight information retrieval to adjusting the central heating to automatically adjusting the light coming through the window with some kind of electro-luminescent material that would compensate for lack of natural light and maintain a constant room light - with a manual overide of course! Main services such as gas, water, electricity, phone and data charge would be read by remote computer accessing each of our systems and billing us accordingly from a credit account.

GOVERNMENT CONTROL?

As time goes by I believe our computers will not only get smarter but because of the sheer numbers involved and the possibility of unlimited access to information they will become difficult to control. Sooner or later someone will decide that each computer will have its own built in identification code put there by the manufacturer so that, when it goes on line, the Department of DATA will have a source of income. Lets face it if people gave up smoking and bought electric vehicles, revenue would have to come from somewhere! I hasten to add that I am not recommending this as a course of action!

I think that computing today is as exciting now as in the beginning but there is still a lot more to come. ●

GOTO DIRECTORY

The GOTO DIRECTORY is a guide to retailers who provide product support for Atari. Many of these retailers will supply Mail Order so if you have trouble finding a supplier, turn to the GOTO DIRECTORY.

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THE SOFTWARE REVIEWS

COHEN'S TOWERS

COHEN'S TOWERS is a pretty obscure sort of game in the sense that precious few people seem to have heard of it which is a great pity because it is an original and highly addictive game with great graphics and even better sound.

In the actual game you play the part of the Boss's nephew, Allen, who is starting out in his new job as a mailboy. The game begins with a novel opening sequence involving a telex type message from the Boss. After that, it's on with the job.

The screenplay is a view of a block of flats split down the centre. Allen has to collect the many parcels one at a time from the various levels and deposit them in any of the three available 'mail drops'. Lifts are used to move up and down between the levels but jumping on and off the lifts is a fairly critical operation and requires a great deal of practice in order to time it just right. One false move and Allen plunges to his doom, forfeiting one of his lives. Also, if he stays on any individual lift for too long he is in danger of being knocked off by falling plant pots.!

Allen is hampered in his work by pesky dogs who persue him relentlessly on most of the levels. He can either jump over them or jump onto a lift in a bid to escape. At certain stages in the game a young girl and a sleepwalker will appear. Allen must touch them before they disappear inside the doors on their respective levels or he forfeits a life. The sleepwalker, incidentally, is a scream. He looks like something straight from the set of Hammer's House of Horrors! Different tunes accompany all the various unusual occurences and they are of excellent standard.

Once Allen has deposited all the parcels in the mail drops, the Boss shows up and leads him off to the next building where the whole thing begins again, only much harder.

COHEN'S TOWERS is an excellent little game that I can highly recommend

Jim has been awarded an Atari ROM cartridge for his reviews. What about sending in your reviews?

MR ROBOT AND HIS ROBOT FACTORY

Big Five's Miner 2049er spawned a whole new generation of jumping and climbing games. MR ROBOT is a variation of the basic theme but it is so much more than just another jumping and climbing game. Quite simply, it is the best game of this type currently available for the Atari.

The complete software package is really two different games in one, MR ROBOT being the main game whilst the ROBOT FACTORY is an added bonus. In the main game, you control Mr Robot and the idea is to collect all the power pills in order to advance onto the next level. You are hampered by nasty 'alienfire' which patrol the various platforms. You can jump over them or, alternatively, collect an energiser which immediately shrouds Mr Robot with a force-field, enabling him to dispose of the alienfire merely by touching them. Predictably, the force-field effect lasts only for a limited amount of time.

There are 22 levels of play, each level completely different from the previous one. You will encounter various modes of transport such as ladders, tread-mills, escalators, poles to slide down, bombs to walk over and explode, trampolines, transporters, magnets to enable you to jump over large gaps and much, much more.

The graphics are superb and DLI's have been used to create some interesting rainbow colour effects. With 22 different levels of play, the game is a constant challenge and you will not tire of it easily. MR ROBOT has more variety than Miner 2049er, superior graphics, colour and sound and is an all round better game. I certainly rate it in my top 5 'all-time' Atari games.

The ROBOT FACTORY is virtually a game in itself. It allows you to create up to 26 different screens and save them to disk in order to produce your very own version of MR ROBOT. The possibilities are endless.

THREE FROM DATAMOST
ALL 48k DISK ONLY
Reviewed by Jim Short

MONSTER SMASH

This serves to prove that simple games are generally the most addictive. You are in charge of a grid that is being invaded from two different sides of the screen by mischievous monsters. You must entice them into the grid by opening various doors and quickly trap them by closing the doors behind them. Then you must smash them to pulp with your pulverisers! The doors are controlled by the joystick and the pulverisers by either the joystick or the fire button depending on whether you wish to operate the left or right sets of pulverisers or both. Each monster you smash earns you a certain number of points with high points being awarded for smashing multiple monsters. Any monster that manages to escape off the screen is counted against you. When a total of 10 monsters have escaped the game is over.

At certain points during the game, depending on your current score, the play pauses momentarily before advancing onto the next level. Also your 'escapees' total is reset to zero. In the higher levels the monsters become much more tricky as play speeds up considerably. Visitors (humans) are introduced to the game and you must allow them to pass safely through the grid whilst you are still busy smashing the monsters. If you accidentally smash 3 visitors the game is over, however you score large bonus points for allowing a visitor to pass safely through the grid. A High Score table is incorporated in the game for all those who like to see their name in lights.

The outstanding thing about MONSTER SMASH is the opening title tune. It is, without any shadow of doubt, the best musical score I've ever heard in a computer game. It is almost worth purchasing the game just to listen to the music. Yes, it is that good!

AUTOCAR

An Analysis utility for your Petrol and Oil consumption

Program Requirements 48K DISK

by Peter Franey

Formatting data for screen display is a very powerful feature of Atari basic. It is well known that the tab stops on the screen can be changed and reset from within a string. Apart from formatted display, formatted input can be produced in the same way. By far the easier method of changing tab stops is by the use of strings. Once the strings are set up, they need only be printed to the screen to produce the desired results. There is one other method, which is to poke in directly the values required. This technique is used in the main program presented here. The decimal locations 675 to 689 control all the tab locations on the screen display. The screen is 40 columns across and each of the above locations controls eight bits or eight potential tabs on it. The reason there are so many locations is that they control one logical line, or three screen lines. To change the tabs for display, only the first five locations need be changed. To cancel all tabs a zero is into poked each location. If a zero is poked into 675 then there would be no tab in the first eight columns (00000000). If the same was done with location 676 then the first two bytes or 16 bits or 16 screen columns would look like this, 0000000000000000. This means :

Location 675 controls columns 0 to 7
Location 676 controls columns 8 to 15
Location 677 controls columns 16 to 23
Location 678 controls columns 24 to 31
Location 679 controls columns 32 to 39

If you wish to place a tab stop in column 25 then you must use location 678. However there is a problem, supposing you want to set tab stops at columns 25, 27 and 30, how do you do it? The answer is that the eight tab stops covered by each location is really a binary number. The decimal equivalent must be poked into that location. If we wish to have tab stops at columns 25, 27 and 30, the eight bits or single byte covered by 678 should look like this, 01010010. There is a one at each tab position. We need to poke the decimal equivalent into location 678. In this case the value that must be poked into 678 is 82. To reset the default tabs press system reset. The tab stops should not be confused with PTABW location 201, which controls the distance between print statements using commas. Once the tab positions are set, the cursor can be moved to each position by pressing the [TAB] key.

It is not the purpose of this article to delve into conversion of binary to decimal, but before I continue with details of the program I will say that a good conversion utility (BINARY-HEX-DECIMAL) can be found in Mapping the Atari, a Compute! publication.

PLANNING THE PROGRAM

Before starting any programming project such as this it is very important to have a clear objective in mind. Even before the planning starts there must be a clear idea of what is to be achieved and if possible how. Only then can any program begin to take shape in the mind. This is particularly important if you do not want things to come to a sudden halt, when the ideas run out, or the results do not turn out as expected.

The first thing to do is to ask yourself a series of questions. They usually begin with, "What do I want the program to do". In the case of Autocar this was easy but "What is the best way of analysing your car's petrol consumption" was a little harder. Further questions come to mind like "How much does the tank hold" and "Will I run out of petrol if I run the tank too low." These questions are relevant because you need to know how much fuel is used. Happily there is a simpler answer to all this confusion.

When you next fill up with petrol, and I mean FILL UP or the system will not work. Make a note of the DATE, QUANTITY, PRICE and clock mileage. Enter the data into the program. When you next decide to visit a petrol station make a note of the details again and ENSURE that the tank is filled. The amount now replaced in the tank is totally representative of the mileage covered. Continue with this until a number of data entries have been made. The program will show clear differences between the consumption for town work, medium distances, and motorway long hauls. There are still inaccuracies using this method but, over a period of time, the true facts will emerge.

If when buying petrol you do not fill the tank, then save the details and add them together before entering them into the program, with the clock mileage at the time of the last fill up. REMEMBER before using this addition method, you must have completely filled the petrol tank at the point at which you decide to enter the details, otherwise the results will be meaningless.

SUMMARY OF THE PROGRAM FUNCTIONS

There are two program listings for Autocar. The main listing is here and the second listing covering the graph functions will appear next issue. The programs enable the user to enter the clock mileage, the date, the quantity in gallons, or pints, and the cost. The programs will then analyse costs and consuption, in figures or graphical form. The graph option has been disabled in this first listing but the program can be used as it stands.

The program features **ANALYSIS BETWEEN ANY TWO DATES** and **ANALYSIS OF ALL DATA**. The average values are given for **MILES/GALLON** or **MILES/PINT** and **PRICE/GALLON** or **PRICE/PINT**. Totals are given for **MILES COVERED**, **GALLONS OR PINTS CONSUMED** and **COSTS**.

PROGRAM OPERATION

Anyone who is only interested in entering the program, and using it, should first read the PLANNING section, in order to obtain practical information on the use of Autocar.

GETTING STARTED

The listing in this issue is the main program. Type it in carefully, using TYPO II if you have a copy, and save the program to disk using SAVE"D:CAR". **Before running the program delete line number 200**. Run the program. The main menu will now appear. The program will not allow any selection to be made, from this menu, until Oil 'O' is pressed, or Petrol 'P' is pressed. The main menu will now display the selection made at the top of the screen.

Creating the disk data file: Select option '7' from the main menu. The computer will now save a data file to disk. The data for both Oil and Petrol are saved together in the same file. Re - enter line number 200, or re-load the program from disk.

Every time the program is now run, all data previously saved by it will be automatically loaded, before the main menu appears.

USING THE PROGRAM

Data is entered and saved using the program in this issue. The graphics program to be published next issue will chart the data entered from program one. Both programs will be chained together on the disk drive. Each program runs the other. It is therefore important that the correct filenames are used for each, when saving them to disk. Listing one should be saved using SAVE"D:CAR", while SAVE"D:GRAPH" should be used when you add the GRAPH listing.

1..ENTERING DATA

When this option is selected the next screen will ask for 'E'-EXIT or 'D'-ENTER DATA to be pressed. Exit will return the program to the main menu. If data entry was selected the screen will go blank for some seconds and the next screen will show a formatted data entry including ENTRY No., DATE, MILES, GALLONS (or PINTS) and PRICE. The entry number will already be displayed at the far left of the screen. Make the entries in each field in the format shown above each field title. After each entry press the 'TAB' key. The cursor will now jump to the next field. Continue this process until the last field is reached. After the entry in the last field, do not press the 'TAB' key, press 'RETURN'. At the bottom of the screen the option to add more data 'A' or to exit 'E' will be given. Exit will return the program to the main menu. If the add option is chosen the cursor will update the available memory at the top of the screen, and return to directly under the previous entry, where the process may be repeated. The new entry number will also be displayed. When the screen is filled with data entries, the program will clear the screen and give the option to exit, or make further entries.

2..DELETE DATA

This routine asks for a simple date entry in the format of MMDDYY, as displayed on the screen. Enter the date and press RETURN. If the entry is not found the program will ring the bell, and the option to re-enter the date or to exit, will be given. If the date entered here is found the data will appear instantly. A machine language subroutine is used in the program to provide such a fast response. When the entry is found the choice to continue search, exit or re-enter the date will be given. The continue search option is provided on the slim chance that two dates which are the same may be in the records. This could happen if a long journey is involved, or the date was entered incorrectly in the first place. If delete data has been chosen (SELECT) the program will display, 'ERASING DATA PLEASE WAIT'. After deleting the data, if it occurs in the middle of the file, a gap will now exist. The program will now take a few more seconds to close this gap (CONCATENATE THE FILE). If the entry which was deleted was in in the middle of the file and it is necessary to replace it in a similar position, OPTION 6, the insert data routine must be used from the main menu. (SEE 6..INSERT/DELETE ALL DATA).

3..VIEW DATA

This part of the program is a series of routines, to display the data entries to screen. Among the options are; STEP THROUGH DATA, SINGLE DATA SEARCH and DATE RANGE OF DATA.

Step through data: This routine will display all data to the screen.

Single data search: This selection will require a single date entry. 'END OF SEARCH PRESS ANY KEY', will appear. If the entry was found, it will appear instantly. If not, then nothing will be displayed.

Date range of data: The purpose of this option is for the user to enter a range of dates, between which the program will display all data. (DATE1 & DATE2). The dates which

→

are entered for these may be dates which are not actually in the records. The program will still display all data entries between them.

4..PRINT DATA

This option will print all data in the memory to the printer. SEE PRINTER SUPPORT, for more information.

5..SPECIAL CALCULATIONS

Among the options given in this set of routines are ALL TOTALS AND AVERAGES, GRAPHICAL ANALYSIS, and COST ANALYSIS.

All Totals and Averages: This routine can, if used correctly, be the most useful in the whole program. The program prompts the user to enter two dates. The first date must be earlier than the second. If RETURN is pressed without entering anything for either prompt, the program will default to analysing all the data entries in the memory. The instructions for using this routine are clearly shown on the screen. Whatever combination is used, the dates entered, must be dates actually in the records, or the program will again default to analysing all data. If the results are unexpected, check your dates by using option 3 from the main menu, VIEW DATA or, if you have a printer, option 4 PRINT ALL DATA.

The first choice is to press RETURN for the first date, and enter the second. The program will then analyse all data up to that date. Choice two is the reverse, enter date one, and press RETURN for the second date. The program will then analyse all data from the date entered, up to the last entry. If both dates are entered then the program will analyse any entries between them. All results may be sent to the printer.

Graphical Analysis: If 2 is pressed, the computer will load, and run the graphing program (to be published next issue).

Cost analysis: Before selecting this part of the program, whether for oil or petrol, ensure that more than one data entry is in the program, or the display will be blank.

The program will analyse the data between each pair of entries, giving the dates, (date1 to date2,date2 to date3), the mileage between them, the corresponding consumption in MILES/GALLON or MILES/PINT and the COST/GALLON or COST/PINT. These last two items are shown in graphical form if GRAPHICAL ANALYSIS is chosen.

All results may be sent to the printer.

6..INSERT/DELETE ALL DATA

When data is entered into the program using option one, it is not sorted into date order. The enter data routine assumes that each successive date is later than the first. The insert routine presented here will insert data between existing entries. This will be carried out according to date and mileage. It must follow that if a date entry neatly fits in chronological order, between two existing entries, the clock mileage must also fit in at the same point. However for long journeys, the petrol tank could be filled up twice on the same day. This will also be taken into account. If the program will not accept any entry in which the date is later, insert the new entry with reference to the mileage. The program will not except any entry in which the date is later, or the mileage greater, than the last entry. The last entry will be displayed.

One further point should be made about this routine, and that is that the greater the number of entries, the longer this process will take.

Delete all Data: The purpose of this routine is that once the memory is full, all the records may be cleared to start again.

7..SAVE DATA TO DISK

This option is used to save oil and petrol records to disk. It should be used after any new data entries are made. I recommend that you keep at least one backup copy of your data file on another disk.

8..LOAD DATA FROM DISK

This part of the program may be used to re-load a data file from disk. It may also be used to load different data files, for example, for another vehicle. When a different data file is loaded, any previous file will be erased.

PRINTER SUPPORT

All printer output is tailored to forty columns. The program supports output to an 80 column dot matrix printer. As presented the code is designed for forty column DOUBLE WIDTH output for the Epson type of printer. If you have a dot matrix printer and the codes are not compatible with the Epson, then you will have to change lines 6000 and 7400 in the program to the appropriate codes for your printer. If your printer is not dot matrix then alter lines 6000 and 7400 to TRAP 9000 only.

LINE BY LINE

3 - 200	INTIALISATION
500 - 770	MAIN MENU & SELECTION ROUTINES
780 - 1330	ENTER DATA ROUTINE
1340 - 1420	VIEW DATA MENU & SELECTION
1425 - 1508	SINGLE STEP THROUGH DATA
1510 - 1640	SINGLE DATA SEARCH
1650 - 1800	DELETE DATA ENTRY ROUTINE
1810 - 1970	DELETE DATA ROUTINE
1980 - 2170	RANGE OF DATA ROUTINE
3000 - 3140	SPECIAL CALCULATIONS MENU
3142 - 3258	CALCULATION OF TOTALS & AVERAGES
3265 - 3350	DISPLAY RESULTS
4000 - 4030	STRING SEARCH ROUTINE
5000 - 5020	SAVE DATA ROUTINE
5030 - 5060	LOAD DATA ROUTINE
6000 - 6130	PRINTER ROUTINE
7000 - 7340	COST ANALYSIS
20000 - 20150	DATA FOR STRING SEARCH ROUTINE

```
EN 0 REM ******************************
PC 1 REM *         AUTOCAR            *
FQ 2 REM *      by PETER FRANEY       *
IN 3 REM *  PAGE 6 MAGAZINE - ENGLAND  *
EL 4 REM ******************************
FN 5 Q0=0:Q1=1:Q2=2:Q4=4:Q6=6:Q8=8:Q9=5:Q10=10:Q11=7:Q12=9:Q14=12:Q15=13:Q17=15:Q18=16:Q19=17:Q20=1000:Q21=3000
RC 6 Q22=5000:Q23=1010:Q24=3:Q27=27:Q29=20:Q30=5030:Q31=23:Q33=4000:Q34=34:Q35=2035:Q37=4020:Q48=48:Q49=49:Q50=50
SU 7 Q69=69:Q51=51:Q52=52:Q57=57:Q65=65:Q71=6070:Q79=79:Q82=82:Q99=99:Q100=100:Q151=3150:Q200=200:Q207=207
UL 8 Q279=53279:Q300=1300:Q301=6300:Q310=1310:Q340=1340:Q430=1430:Q500=500:Q510=1510:Q522=522:Q550=1550:Q559=559
GG 9 Q650=1650:Q664=1664:Q675=675:Q676=676:Q677=677:Q678=678:Q709=709:Q710=710:Q712=712:Q752=752:Q780=780:Q980=1980
ZL 10 E=Q1:OPEN #Q2,Q4,Q0,"E:":POKE Q82,Q0:M=Q0:F=Q200:IF PEEK(Q664)<>104 THEN GOSUB 20000
NO 12 OPEN #Q24,Q4,Q0,"S:"
DT 15 DIM DATEP$(Q6*F),DATEO$(Q6*F),MP(F),GP(F),PP(F),MO(F),P2(F),PO(F),X$(Q6),S$(Q6*F),P$(40)
VY 20 DIM ENT$(Q27),TITLE$(25),X1$(Q6),BUF$(Q100),IO$(Q1)
IP 90 DATEO$(Q1)=" ":DATEO$(Q6*F)=" ":DATEO$(Q2)=DATEO$:DATEP$=DATEO$
EV 100 FOR I=Q1 TO F:MP(I)=Q0:GP(I)=Q0:PP(I)=Q0:MO(I)=Q0:P2(I)=Q0:PO(I)=Q0:NEXT I
TO 200 GOSUB 5030
GN 500 GRAPHICS Q0:POKE Q710,26:POKE Q712,28:POKE Q709,Q0:POKE Q752,Q1:POKE Q559,Q0
LV 510 POSITION Q0,Q0:? ">>>          PETROL/OIL RECORDS           >>>":POSITION Q10,Q2:? "[P]-PETROL  [O]-OIL "
WY 520 POSITION Q0,Q4:? ">>>      CHANGE MODE OR SELECT OPTION    >>>"
YL 522 POSITION Q8,Q9:? "CURRENT MODE: ";:IF M=Q1 THEN ? "OIL        "
VV 526 IF M=Q2 THEN ? "PETROL     "
RK 528 IF M=Q0 THEN ? "SELECT MODE"
ON 529 POSITION Q0,Q6:? "                                                        "
ZO 530 POSITION Q0,Q11:? "           1.......ENTER DATA          "
VC 535 POSITION Q0,Q8:? "           2.......DELETE DATA          "
PJ 540 POSITION Q0,Q12:? "           3.......VIEW DATA           "
AF 545 POSITION Q0,Q10:? "           4.......PRINT DATA          "
PU 550 POSITION Q0,11:? "           5.......SPECIAL CALCULATIONS  "
TG 560 POSITION Q0,Q14:? "           6.......INSERT/DELETE ALL DATA "
YI 570 POSITION Q0,Q15:? "           7.......SAVE DATA TO DISK     "
LJ 580 POSITION Q0,Q14:? "           8.......LOAD DATA FROM DISK   "
QB 585 POSITION Q0,Q17:? "           9.......RETURN TO BASIC       "
UD 590 POSITION Q0,Q18:? "                                                        "
VA 600 POSITION Q0,Q19:? "                                                        ":POKE Q559,Q34
FE 700 GOSUB Q20
BL 710 IF M=Q79 THEN M=Q1:GOTO Q522
SN 720 IF M=80 THEN M=Q2:GOTO Q522
WZ 730 IF M=Q0 THEN ? "{K}":GOTO Q500
DL 740 IF M<>Q49 AND M<>Q50 AND M<>Q51 AND M<>Q52 AND M<>53 AND M<>54 AND M<>55 AND M<>56 AND M<>Q57 THEN 700
RN 750 IF M=Q57 THEN POKE Q82,Q2:POKE 83,39:GRAPHICS Q0:END
NK 770 X=M-Q48:ON X GOSUB Q780,Q650,Q300,7400,Q21,8000,Q22,Q30:GOTO Q500
SD 780 GRAPHICS Q0:POKE Q710,40:POKE Q712,36:POKE Q709,Q1:POSITION Q0,Q0:POKE Q752,Q1
AD 782 IF M=Q2 THEN ? ">>>        PETROL E N T E R  D A T A       >>>"
SA 784 IF M=Q1 THEN ? ">>>           OIL E N T E R  D A T A       >>>"
UX 790 POSITION Q0,Q2:? ">>>       [E]-EXIT   [D]-ENTER DATA        >>>"
AQ 800 GOSUB Q20:IF M<>Q69 AND M<>68 THEN 800
QK 820 IF M=Q69 THEN RETURN
IP 825 ? "{K}":POKE Q752,Q0
RH 830 POSITION Q0,Q0:? ">>>>>      E N T E R   D A T A          >>>>>":GOSUB 835:GOTO Q23
MG 835 POKE Q559,Q0:P=Q0:O=Q0:X$="      ":IF M=Q1 THEN S$=DATEO$
RC 837 IF M=Q2 THEN S$=DATEP$
GI 840 A1=Q1:A=Q1:FOR I=Q1 TO F:LY=LEN(S$):LX=LEN(X$):POKE Q207,LX-Q1:IF A1<Q1 THEN A1=Q1
AQ 860 IF A1>LY-LX+Q1 OR LX>LY THEN A=Q0:A1=Q1
WS 870 IF A=Q0 THEN 910
FG 880 B=LY-LX-A1+Q24:A=USR(Q664,ADR(S$(A1)),ADR(X$),B):IF A=Q1 AND M=Q2 THEN P=P+Q1
MS 895 IF A=Q1 AND M=Q1 THEN O=O+Q1
WR 900 A1=A1+Q6:NEXT I
BE 910 POSITION Q11,Q2:? "RECORD SPACE"
BJ 920 IF M=Q1 THEN POSITION Q17,Q4:? "OIL:";O;"  "
NY 930 IF M=Q2 THEN POSITION Q14,Q4:? "PETROL:";P;"  "
CP 940 POKE Q559,Q34:RETURN
CE 1000 CLOSE #Q1:OPEN #Q1,Q4,Q0,"K:":GET #Q1,M:CLOSE #Q1:RETURN
FH 1010 POSITION Q0,Q9:IF M=Q1 THEN ? ">>>>>>     ENTER OIL DATA            >>>>>"
QG 1020 IF M=Q2 THEN ? ">>>>>        ENTER PETROL DATA          >>>>>"
UT 1022 POSITION Q0,Q6:? " ENTER DATA IN EACH FIELD AS SHOWN, THEN"
GE 1024 POSITION Q0,Q11:? "PRESS TAB. PRESS RETURN AFTER LAST FIELD"
ZD 1025 POKE Q675,Q4:POKE Q676,Q4:POKE Q677,Q8:POKE Q678,Q18
OP 1040 IF M=Q1 THEN S$=DATEO$:TITLE$="NO{TAB}DATE{TAB}MILES{TAB}PINTS{TAB}PRICE"
NV 1050 IF M=Q2 THEN S$=DATEP$:TITLE$="NO{TAB}DATE{TAB}MILES{TAB}GALLS{TAB}PRICE"
LV 1060 X$="      ":A1=Q1:A=Q1:LY=LEN(S$):LX=LEN(X$):POKE Q207,LX-Q1:B=LY-LX-A1+Q24:A=USR(Q664,ADR(S$(A1)),ADR(X$),B)
OB 1080 IF A=Q1 THEN I=Q1:GOTO 1095
PE 1090 I=INT(A/Q6)+Q1
GU 1095 POSITION Q0,Q12:? "00{TAB}MMDDYY{TAB}00000{TAB}00.00{TAB}00.00":POSITION Q0,Q10:? TITLE$
YL 1100 POSITION Q0,E+Q10:? I;"{TAB}";:INPUT #Q2;ENT$
EG 1115 IF LEN(ENT$)=Q0 OR LEN(ENT$)<22 THEN GOTO Q23
MT 1117 FL=Q0:L=LEN(ENT$):IF L<Q27 THEN ENT$(LEN(ENT$)+Q1)=" ":GOTO 1117
LQ 1118 POKE Q752,Q1:POSITION Q9,Q29:? "DATA CORRECT (Y/N) ":GOSUB Q20
SS 1119 IF M<>ASC("Y") AND M<>ASC("N") THEN 1118
QA 1120 IF M=ASC("N") THEN 825
FG 1125 IF M=Q2 THEN MP(I)=VAL(ENT$(Q12,Q15)):GP(I)=VAL(ENT$(Q18,Q29)):PP(I)=VAL(ENT$(Q31,Q27))
PZ 1130 IF M=Q1 THEN MO(I)=VAL(ENT$(Q12,Q15)):P2(I)=VAL(ENT$(Q18,Q29)):PO(I)=VAL(ENT$(Q31,Q27))
SI 1140 S$(I*Q6-Q9,I*Q6)=ENT$(Q1,Q6):IF M=Q1 THEN DATEO$=S$:O=O-Q1
PK 1150 IF M=Q2 THEN DATEP$=S$:P=P-Q1
GM 1160 POKE Q752,Q1:POSITION Q9,Q29:? "  [A]-ADD DATA      [E]-EXIT "
VM 1170 GOSUB Q20:IF M<>Q69 AND M<>Q65 THEN 1170
VV 1190 IF M=Q69 THEN E=Q1:RETURN
JA 1200 IF M=Q65 THEN E=E+Q1:POSITION Q9,Q29:? "                              ":POKE Q752,Q0
HN 1205 IF E>Q12 THEN E=Q1:? "{K}":GOTO 830
FU 1210 GOSUB 920:GOTO Q23
MA 1300 GOSUB Q310:GOTO Q340
PN 1310 IF M=Q1 THEN TITLE$="NO{TAB}DATE{TAB}MILES{TAB}PINTS{TAB}PRICE":S$=DATEO$
AM 1320 IF M=Q2 THEN TITLE$="NO{TAB}DATE{TAB}MILES{TAB}GALLS{TAB}PRICE":S$=DATEP$
PW 1330 POKE Q675,Q4:POKE Q676,Q4:POKE Q677,Q8:POKE Q678,Q18:RETURN
PD 1340 GRAPHICS Q0:POKE Q710,Q0:POKE Q709,Q10:POKE Q752,Q1
UG 1345 POSITION Q0,Q0:? ">>>                 V I E W  D A T A       >>>"
ZG 1350 POSITION Q0,Q2:IF M=Q1 THEN ? "                O I L                     "
YG 1360 IF M=Q2 THEN ? "                    P E T R O L            "
FZ 1370 POSITION Q6,Q4:? "LIST OF OPTIONS":POSITION Q6,Q6:? "1....STEP THROUGH DATA"
XN 1375 POSITION Q6,Q8:? "2....SINGLE DATA SEARCH"
MC 1380 POSITION Q6,Q10:? "3....DATE RANGE OF DATA":POSITION Q6,Q14:? "4....MAIN MENU"
DI 1390 GOSUB Q20:IF M<>Q49 AND M<>Q50 AND M<>Q51 AND M<>Q52 THEN 1390
VC 1410 IF M=Q52 THEN RETURN
OT 1420 X=M-Q48:ON X GOSUB 1425,Q510,Q980:GOTO Q340
```

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```
MQ 1425 PAGE=Q1:POKE Q675,Q4:POKE Q676,Q4
   :POKE Q677,Q8:POKE Q678,Q18
PP 1426 IF M=Q1 THEN S$=DATEO$:TITLE$="NO
   ▶DATE▶MILES▶PINTS▶PRICE"
OM 1427 IF M=Q2 THEN S$=DATEP$:TITLE$="NO
   ▶DATE▶MILES▶GALLS▶PRICE"
UL 1428 PAGE=Q1:GOSUB Q430:GOTO 1450
AA 1430 ? "K":POSITION Q0,Q0:? "
   SINGLE STEP THROUGH DATA          "
XJ 1440 POSITION Q10,Q2:? "PAGE: ";PAGE;"
   ":POSITION Q0,Q4:? TITLE$:RETURN
MS 1450 E=Q1:FOR I=Q1 TO F:IF S$(Q6*I-Q9,
   Q6*I)="      " THEN 1500
FA 1470 IF M=Q2 THEN ? I;"▶";S$(Q6*I-Q9,Q
   6*I);"▶";MP(I);"▶";GP(I);"▶";PP(I)
ED 1480 IF M=Q1 THEN ? I;"▶";S$(Q6*I-Q9,Q
   6*I);"▶";MO(I);"▶";P2(I);"▶";PO(I)
QK 1490 E=E+Q1:IF E=Q19 THEN E=Q1:PAGE=PA
   GE+Q1:GOSUB 1502
YP 1500 NEXT I:? :? "   END OF FILE PRESS
    ANY KEY":GOSUB Q20:E=Q1:RETURN
PI 1502 ? :? "START-MENU  SELECT-NEXT PA
   GE"
LA 1504 IF PEEK(Q279)=Q6 THEN POP :RETURN
HO 1506 IF PEEK(Q279)=Q9 THEN GOSUB Q430:
   RETURN
SQ 1508 GOTO 1504
SD 1510 ? "K":POSITION Q0,Q0:? "
      SINGLE DATA  SEARCH          ":POSIT
   ION Q6,Q4:? "ENTER DATE:-"
LF 1530 ? "▶DATE":? "▶MMDDYY":? "▶←";:INP
   UT X$:IF LEN(X$)<>Q6 THEN GOTO Q510
IN 1540 ? "K":GOSUB Q550:GOTO 1570
OF 1550 IF M=Q2 THEN S$=DATEP$:TITLE$="NO
   ▶DATE▶MILES▶GALLS▶PRICE"
PH 1555 IF M=Q1 THEN S$=DATEO$:TITLE$="NO
   ▶DATE▶MILES▶PINTS▶PRICE"
DU 1560 POKE Q675,Q4:POKE Q676,Q4:POKE Q6
   77,Q8:POKE 679,Q18:? :? :? TITLE$:RETU
   RN
OS 1570 A1=Q1:LY=LEN(S$):LX=LEN(X$):POKE
   Q207,LX-Q1:I=Q0:E=Q0
CF 1580 B=LY-LX-A1+Q24:A=Q0:A=USR(Q664,AD
   R(S$(A1)),ADR(X$),B):IF A=Q0 THEN 1600
AZ 1590 I=I+INT(A/Q6)+Q1:IF S$(Q6*I-Q9,Q6
   *I)<>X$ THEN 1596
FJ 1592 E=E+Q1:IF M=Q2 THEN ? I;"▶";S$(Q6
   *I-Q9,Q6*I);"▶";MP(I);"▶";GP(I);"▶";PP
   (I)
EY 1594 IF M=Q1 THEN ? I;"▶";S$(Q6*I-Q9,Q
   6*I);"▶";MO(I);"▶";P2(I);"▶";PO(I)
RH 1595 IF E>=Q19 THEN E=Q0:GOSUB 1610
QP 1596 A1=I*Q6-Q9:GOTO 1580
MM 1600 ? :? " E N D    O F    S E A R C
   H -ANY KEY":GOSUB Q20:RETURN
TI 1610 ? :? "START-MENU  SELECT-CONTINUE
    SEARCH"
KS 1620 IF PEEK(Q279)=Q6 THEN POP :RETURN
QV 1630 IF PEEK(Q279)=Q9 THEN ? "K":GOSUB
    Q550:RETURN
RG 1640 GOTO 1620
VC 1650 GRAPHICS Q0:POKE Q710,Q200:POKE Q
   709,Q0:POKE Q712,196:POKE Q752,Q0
YE 1660 GOSUB Q310:POSITION Q0,Q0:? "
              DELETE DATA              ":
   POSITION Q15,Q2:IF M=Q1 THEN ? "OIL"
IX 1680 IF M=Q2 THEN ? "PETROL"
HQ 1690 ? :? :? "▶▶MMDDYY":? "▶▶DATE":? "
   ▶←";:INPUT X$:IF LEN(X$)<Q6 THEN GOTO
   Q650
LO 1700 A1=Q1:POKE Q752,Q1
XU 1710 LY=LEN(S$):LX=LEN(X$):POKE Q207,L
   X-Q1:B=LY-LX-A1+Q24
PO 1720 A=Q0:A=USR(Q664,ADR(S$(A1)),ADR(X
   $),B):IF A=Q0 THEN ? :? :? "GR      E
   NTRY NOT FOUND":? :? :GOTO 1940
VL 1725 ? TITLE$:? :IF A1=Q1 THEN I=INT(A
   /Q6)+Q1
IJ 1727 IF A1>Q1 THEN I=I+INT(A/Q6)+Q1
AX 1730 ? I;"▶";S$(A1+A-Q1,A1+A+LX-Q2);"▶
   ";:IF M=Q1 THEN ? ;MO(I);"▶";P2(I);"▶"
   ;PO(I)
UN 1750 IF M=Q2 THEN ? ;MP(I);"▶";GP(I);"
   ▶";PP(I)
PT 1760 ? :? "START-EXIT SELECT-DELETE OP
   TION-SEARCH"
KY 1770 IF PEEK(Q279)=Q6 THEN RETURN
TM 1780 IF PEEK(Q279)=Q24 THEN A1=I*Q6-Q9
   +Q6:GOTO 1710
RD 1790 IF PEEK(Q279)=Q9 THEN 1810
TX 1800 GOTO 1770
KN 1810 ? :? "       ERASING DATA PLEASE WA
   IT":FOR X=I TO F:IF M=Q1 AND X=F THEN
   MO(X)=Q0:P2(X)=Q0:PO(X)=Q0
PH 1817 IF M=Q2 AND X=F THEN MP(X)=Q0:GP(
   X)=Q0:PP(X)=Q0
VJ 1818 IF X=F THEN S$(X*Q6-Q9,X*Q6)="
   ":GOTO 1900
JA 1820 IF M=Q1 THEN MO(X)=MO(X+Q1):P2(X)
   =P2(X+Q1):PO(X)=PO(X+Q1)
ZN 1830 IF M=Q2 THEN MP(X)=MP(X+Q1):GP(X)
   =GP(X+Q1):PP(X)=PP(X+Q1)
SM 1840 S$(X*Q6-Q9,X*Q6)=S$((X+Q1)*Q6-Q9,
   (X+Q1)*Q6)
RX 1900 NEXT X:IF M=Q1 THEN DATEO$=S$
VY 1920 IF M=Q2 THEN DATEP$=S$
LE 1930 ? :? " DATA ERASED & FILE CONCETE
   NATED":?
CF 1940 ? " START-EXIT SELECT-ERASE MOR
   E DATA":POKE Q279,Q0
KN 1950 IF PEEK(Q279)=Q6 THEN RETURN
AG 1960 IF PEEK(Q279)=Q9 THEN GOTO Q650
US 1970 GOTO 1950
AE 1980 GOSUB Q310:? "K":POSITION Q0,Q0:?
    "          DISPLAY RANGE OF DATA
       "
FR 1985 POSITION Q17,Q2:IF M=Q1 THEN ? "O
   IL"
HO 2000 IF M=Q2 THEN ? "PETROL"
KQ 2010 ? :? :? "DATE1▶MMDDYY":? "▶▶DATE"
   :? "▶▶←";:INPUT X$:IF LEN(X$)<Q6 THEN
   GOTO Q980
XL 2020 ? :? :? "DATE2▶MMDDYY":? "▶▶DATE"
   :? "▶▶←";:INPUT X1$:IF LEN(X1$)<Q6 THE
   N GOTO Q980
FQ 2030 TRAP Q980:IF VAL(X$)>VAL(X1$) THE
   N ? "GR":GOTO Q980
MY 2032 GOSUB Q35:GOTO 2040
VU 2035 ? "K":? "    DATE:";X$(Q24,Q4);"/"
   ;X$(Q1,Q2);"/";X$(Q9,Q6);" TO ";X1$(Q2
   4,Q4);"/";X1$(Q1,Q2);"/";X$(Q9,Q6)
BH 2036 RETURN
AH 2040 E=Q0:? :? TITLE$:IF E=Q18 THEN E=
   Q0:GOSUB 2140
EO 2050 FOR I=Q1 TO F:IF S$(Q6*I-Q9,Q6*I)
   ="      " THEN 2070
PJ 2060 IF VAL(S$(Q6*I-Q9,Q6*I))>=VAL(X$)
    AND VAL(S$(Q6*I-Q9,Q6*I))<=VAL(X1$) T
   HEN E=E+Q1:GOSUB 2100
HL 2070 NEXT I:? :? "       END OF DATA -
   PRESS ANY KEY";:GOSUB Q20:RETURN
HI 2100 ? I;"▶";S$(Q6*I-Q9,Q6*I);"▶";:IF
   M=Q1 THEN ? ;MO(I);"▶";P2(I);"▶";PO(I)
   :E=E+Q1
NN 2120 IF M=Q2 THEN ? ;MP(I);"▶";GP(I);"
   ▶";PP(I):E=E+Q1
AL 2130 RETURN
AN 2140 ? :? " START-EXIT SELECT-CONTIN
   UE SEARCH"
KS 2150 IF PEEK(Q279)=Q6 THEN POP :RETURN
SH 2160 IF PEEK(Q279)=Q9 THEN ? "K":GOSUB
    Q35:? :? TITLE$:RETURN
QM 2170 GOTO 2150
EM 3000 GRAPHICS Q0:POKE Q710,Q4:POKE Q71
   2,Q4:POKE Q709,Q10:POKE Q752,Q1
VA 3010 POSITION Q0,Q0:IF M=Q1 THEN ? "
           SPECIAL CALCULATIONS   O I L
   "
GF 3020 IF M=Q2 THEN ? "     SPECIAL CALCUL
   ATIONS    P E T R O L     ":POSITION Q8,Q
   4:? "OPTIONS:-"
FA 3030 POSITION Q8,Q6:? "1....ALL TOTALS
    & AVERAGES":POSITION Q8,Q8:? "2....GR
   APHICAL ANALYSIS"
PR 3050 POSITION Q8,Q10:? "3....COST ANAL
   YSIS":POSITION Q8,Q14:? "4....MAIN MEN
   U"
HY 3110 GOSUB Q20:IF N<>Q49 AND N<>Q50 AN
   D N<>Q51 AND N<>Q52 THEN 3110
VE 3130 IF N=Q52 THEN RETURN
LT 3135 IF N=Q50 THEN GRAPHICS 2+16:COLOR
    1:POSITION 4,4:? #6;"loading data":PO
   SITION 8,6:? #6;"MENU":RUN "D:GRAPH"
KD 3140 X=N-Q48:ON X GOSUB 3142,0,7000:GO
   TO Q21
XM 3142 GOSUB Q310:? "KENTER DATES FOR TO
   TALS & AVERAGES":? "FIRST DATE ONLY:ST
   ART->WHOLE FILE"
LA 3144 ? "SECOND DATE ONLY:START OF FILE
   ->DATE":? "BOTH DATES:DATE1->DATE2":IF
    M=Q1 THEN POSITION Q17,Q11:? "OIL"
QI 3145 IF M=Q2 THEN POSITION Q15,Q11:? "
   PETROL":? :? "▶▶MMDDYY":? "DATE1▶←";
EY 3146 INPUT X$:? :? "▶▶MMDDYY":? "DATE2
   ▶←";:INPUT X1$:IF X$="" AND X1$="" THE
   N S=Q1:FI=F:GOTO Q151
BO 3147 IF LEN(X$)=Q6 AND X1$="" THEN GOS
   UB Q33:FI=F:X1$="      ":GOTO Q151
RV 3148 IF X$="" AND LEN(X1$)=Q6 THEN S=Q
   1:GOSUB Q37:X$="      ":GOTO Q151
EL 3149 IF LEN(X$)=Q6 AND LEN(X1$)=Q6 THE
   N GOSUB Q33:GOSUB Q37
TM 3150 HI=Q0:LO=5000000000:TGP=Q0:TP=Q0:
   PP=Q0:PO=Q0:GOSUB Q310:? "K":POSITION
   Q14,Q10:? "WORKING ON"
GX 3152 IF X$="" AND X1$="" THEN X$="
   ":X1$=X$
MM 3155 POSITION Q10,Q14:? "TOTALS & AVER
   AGES":FOR I=S TO FI:IF S$(Q6*I-Q9,Q6*I
   )="      " THEN 3230
EI 3170 IF M=Q1 THEN IF HI<MO(I) THEN HI=
   MO(I)
PK 3180 IF M=Q2 AND HI<MP(I) THEN HI=MP(I
   )
```

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IB 3190 IF M=Q1 AND LO>MO(I) THEN LO=MO(I)
JU 3200 IF M=Q2 AND LO>MP(I) THEN LO=MP(I)
ZA 3210 IF M=Q2 THEN TGP=TGP+GP(I):PP=PP+PP(I)
KI 3220 IF M=Q1 THEN TP=TP+P2(I):PO=PO+PO(I)
LY 3230 NEXT I:MILES=HI-LO:IF M=Q2 THEN A1=MILES/(TGP-GP(S)):A2=PP/TGP:TGP=TGP-GP(S):PP=PP-PP(S)
NH 3257 IF M=Q1 THEN A1=MILES/(TP-P2(S)):A2=PO/TP:TP=TP-P2(S):PO=PO-PO(S)
KM 3258 A1=INT(A1*Q100)/Q100:A2=INT(A2*Q100)/Q100:? "K":POSITION Q0,Q0:? "          TOTALS & AVERAGES          "
NT 3260 ? "---------------------------------"
QL 3265 POSITION Q0,Q24
VD 3266 ? "FOR DATES ";X$(Q24,Q4);"/";X$(Q1,Q2);"/";X$(Q9,Q6);" TO ";X1$(Q24,Q4);"/";X1$(Q1,Q2);"/";X1$(Q9,Q6)
OV 3267 ? "---------------------------------"
FD 3270 POSITION Q10,Q9:IF M=Q1 THEN ? "OIL"
IR 3280 IF M=Q2 THEN ? "PETROL"
OT 3285 ? "---------------------------------"
ZQ 3290 POSITION Q0,Q11:IF M=Q2 THEN ? "ITEM▸▸MILES▸GALLS▸PRICE"
HI 3300 IF M=Q1 THEN ? "ITEM▸▸MILES▸PINTS▸PRICE"
NZ 3301 ? "---------------------------------":SCR=Q0:SS=12
SI 3310 ? "TOTALS▸";MILES;"▸";:IF M=Q1 THEN ? ;TP;"▸";PO:X$="":X1$=X$
NJ 3320 IF M=Q2 THEN ? ;TGP;"▸";PP
ZN 3330 ? :IF M=Q2 THEN ? "M/GALL▸";A1;"▸▸";A2
MG 3340 IF M=Q1 THEN ? "M/PINT▸";A1;"▸▸";A2
NX 3342 ? "---------------------------------"
KK 3345 POSITION 2,15:? "PRESS START-EXIT OPTION-PRINT DATA"
LL 3347 IF PEEK(Q279)=Q6 THEN RETURN
SA 3349 IF PEEK(Q279)=3 THEN GOSUB 6000:RETURN
VL 3350 GOTO 3347
UW 4000 A1=Q1:LY=LEN(S$):LX=LEN(X$):POKE Q207,LX-Q1:B=LY-LX-A1+Q24:A=Q0:A=USR(Q664,ADR(S$(A1)),ADR(X$),B)
BN 4010 S=INT(A/Q6)+Q1:RETURN
LO 4015 IF A=Q0 THEN S=Q1:? "KK":RETURN
ZI 4020 A1=Q1:LY=LEN(S$):LX=LEN(X1$):POKE Q207,LX-Q1:B=LY-LX-A1+Q24:A=Q0:A=USR(Q664,ADR(S$(A1)),ADR(X1$),B)
NA 4025 IF A=Q0 THEN FI=F:? "KK":RETURN
RT 4030 FI=INT(A/Q6)+Q1:RETURN
YZ 5000 POKE 710,Q0:POKE 709,10:POSITION 7,13:? "7.......SAVE DATA TO DISK"
JA 5005 CLOSE #Q1:OPEN #Q1,Q8,Q0,"D:CAR.DAT"
NO 5010 FOR I=Q1 TO Q14
FN 5012 BUF$=DATEO$(Q100*I-Q99,Q100*I):? #Q1;BUF$:BUF$=DATEP$(Q100*I-Q99,Q100*I):? #Q1;BUF$:NEXT I:IO$=CHR$(155)
LL 5015 BUF$=" "
ZS 5020 FOR I=Q1 TO F:? #Q1;BUF$;IO$;MP(I);IO$;GP(I);IO$;PP(I);IO$;MO(I);IO$;P2(I);IO$;PO(I):NEXT I:CLOSE #Q1:RETURN
HZ 5030 POKE 710,Q0:POKE 709,10:POKE 752,Q1:POSITION 10,10:? "LOADING DATA"
FJ 5035 CLOSE #Q1:OPEN #Q1,Q4,Q0,"D:CAR.DAT"
FC 5040 FOR I=Q1 TO Q14:INPUT #Q1;BUF$:DATEO$(Q100*I-Q99,Q100*I)=BUF$:INPUT #Q1;BUF$:DATEP$(Q100*I-Q99,Q100*I)=BUF$
FZ 5045 NEXT I
XT 5050 FOR I=Q1 TO F:INPUT #Q1;BUF$,MP,GP,PP,MO,P2,PO:MP(I)=MP:GP(I)=GP:PP(I)=PP:MO(I)=MO:P2(I)=P2:PO(I)=PO:NEXT I
OZ 5060 CLOSE #Q1:RETURN
DP 6000 TRAP 9000:LPRINT CHR$(27);"W";CHR$(1);:LPRINT
GJ 6010 P$="":FOR Y=SCR TO SS:FOR X=0 TO 39:POSITION X,Y:GET #3,N:P$(X+1,X+1)=CHR$(N):NEXT X:LPRINT P$:P$="":NEXT Y
NR 6020 LPRINT CHR$(27);"W";CHR$(0);
AN 6030 RETURN
XB 7000 GRAPHICS 0:POKE 710,138:POKE 712,136:POKE 709,1:POKE 752,1:SCR=0:SS=19
EF 7010 GOSUB 7020:GOTO 7080
XM 7020 ? "K":POSITION Q0,Q0:? "  ANALYSING EACH FILL UP FOR :--       "
YK 7030 POSITION 12,2:IF M=Q2 THEN ? "PETROL"
CJ 7040 IF M=Q1 THEN ? "OIL"
ZA 7050 ? :IF M=Q1 THEN ? "MMDDYY▸MMDDYY▸MILES▸M/PINT▸PRICE"
PO 7060 IF M=Q2 THEN ? "MMDDYY▸MMDDYY▸MILES▸M/GALL▸PRICE"
BA 7070 RETURN
JU 7080 CNT=Q0:FOR I=Q1 TO F:CNT=CNT+Q1
MP 7082 IF M=Q2 AND MP(I+Q1)=Q0 THEN 7150
VS 7084 IF M=Q1 AND MO(I+Q1)=Q0 THEN 7150
JA 7090 IF M=Q2 THEN ? DATEP$(6*I-5,6*I);"▸";DATEP$(6*(I+Q1)-5,6*(I+Q1));"▸";ABS(MP(I)-MP(I+Q1));"▸";
YL 7100 IF M=Q1 THEN ? DATEO$(6*I-5,6*I);"▸";DATEO$(6*(I+Q1)-5,6*(I+Q1));"▸";ABS(MO(I)-MO(I+Q1));"▸";
KC 7110 IF M=Q2 THEN ? INT(ABS((MP(I)-MP(I+Q1))/GP(I+Q1))*100)/100;"▸";INT((PP(I)/GP(I))*100)/100
KW 7120 IF M=Q1 THEN ? INT(ABS((MO(I)-MO(I+Q1))/P2(I+Q1))*100)/100;"▸";INT((P2(I)/PO(I))*100)/100
ZD 7130 IF CNT=16 THEN SCR=5:SS=20:GOSUB 7300
BP 7140 TRAP 40000:NEXT I
LX 7150 ? :? "          END OF DATA FILE ";:SS=PEEK(84)-1:GOSUB 7300:RETURN
RC 7300 ? :? " START-EXIT SELECT-MORE OPTION-PRINT":IF I<=16 THEN SCR=0
KP 7310 IF PEEK(Q279)=Q6 THEN POP :RETURN
PI 7320 IF PEEK(Q279)=3 THEN GOSUB 6000:CNT=Q0:GOSUB 7020:RETURN
KN 7330 IF PEEK(Q279)=Q9 THEN CNT=Q0:GOSUB 7020:RETURN
RX 7340 GOTO 7310
JP 7400 TRAP 9000:LPRINT CHR$(27);"W";CHR$(1)
DN 7402 LPRINT " DATA PRINT OUT":LPRINT
ZC 7410 POKE 559,Q0:FOR I=Q1 TO F
FZ 7415 IF (M=Q2 AND MP(I)=Q0) OR (M=Q1 AND MO(I)=Q0) THEN 7440
JD 7420 IF M=Q2 THEN LPRINT I;" ";DATEP$(6*I-5,6*I);" ";MP(I);" ";GP(I);" ";PP(I)
BO 7430 IF M=Q1 THEN LPRINT I;" ";DATEO$(6*I-5,6*I);" ";MO(I);" ";P2(I);" ";PO(I)
XK 7440 NEXT I:LPRINT CHR$(27);"W";CHR$(0):RETURN
IU 8000 GRAPHICS Q0:POKE 710,152:POKE 709,Q0:POKE 712,148:POKE 752,Q1
EO 8010 POSITION Q0,Q0:? "           INSERT OR DELETE ALL DATA      "
XR 8020 POSITION Q10,Q2:IF M=Q1 THEN ? " OIL "
IF 8030 IF M=Q2 THEN ? " PETROL "
IT 8040 POSITION Q0,Q4:? "  [A]-DELETE ALL [I]-INSERT  [E]-EXIT  "
LY 8045 GOSUB Q20
GJ 8050 IF N=69 THEN RETURN
CK 8060 IF N=65 THEN 8500
FL 8070 IF N=73 THEN 8090
VK 8080 GOTO 8045
SW 8090 ? "K":POSITION Q0,Q0:? "          INSERT DATA                "
YU 8100 POSITION Q0,Q2:? "THIS PART OF THE PROGRAM MAY BE USED TO INSERT DATA BETWEEN EXISTING ENTRIES."
PQ 8110 ? "ENTER ANY DATA WHICH INCLUDES CLOCK     MILES(LESS THAN SHOWN) AND DATE,"
MB 8120 ? "EARLIER THAN SHOWN, OTHERWISE IT WILL   NOT BE ACCEPTED.";
FE 8125 ? " TO ENTER NORMAL DATA   SELECT OPTION 1 FROM MAIN MENU."
IO 8130 FOR I=Q1 TO F
NW 8140 IF M=Q2 AND MP(I)=Q0 THEN 8170
MU 8150 IF M=Q1 AND MO(I)=Q0 THEN 8170
FQ 8160 NEXT I
MD 8170 I=I-Q1:POKE Q675,Q4:POKE Q676,Q4:POKE Q677,Q8:POKE Q678,Q18
TP 8180 POSITION Q0,Q10:? "              LAST DATA ENTRY          ":?
LM 8190 IF M=Q2 THEN ? "NO▸MMDDYY▸MILES▸GALLS▸PRICE"
YX 8200 IF M=Q1 THEN ? "NO▸MMDDYY▸MILES▸PINTS▸PRICE"
RU 8210 ? :IF M=Q2 THEN ? I;"▸";DATEP$(6*I-5,6*I);"▸";MP(I);"▸";GP(I);"▸";PP(I)
RZ 8220 IF M=Q1 THEN ? I;"▸";DATEO$(6*I-5,6*I);"▸";MO(I);"▸";P2(I);"▸";PO(I)
LF 8230 TRAP 8240:? :? "▸←";:INPUT ENT$:? ;"↑▸▸←";:INPUT MI:? ;"↑▸▸▸←";:INPUT G:? ;"↑▸▸▸▸←";
SV 8235 INPUT P:TRAP 40000:GOTO 8250
IN 8240 TRAP 40000:? "KK":GOTO 8090
SC 8250 IF M=Q2 AND (LEN(ENT$)<>6 OR MI>=MP(I) OR ENT$>DATEP$(6*I-5,6*I)) THEN ? "KK":GOTO 8090
OA 8260 IF M=Q1 AND (LEN(ENT$)<>6 OR MI>=MO(I) OR ENT$>DATEO$(6*I-5,6*I)) THEN ? "KK":GOTO 8090
FW 8270 ? "K":POSITION 8,10:? "INSERTING DATA"
LS 8280 N=I:FOR I=Q1 TO N
JJ 8290 IF M=Q2 AND MP(I)<MI AND MP(I+Q1)>MI THEN GOSUB 8340:GOTO 8000
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ATARI BULLETIN BOARDS

We have received several calls recently from people who are considering setting up their own Bulletin Boards. We would like to publish a regular guide to BBS's with Atari interest in all future issues. If you have a board up and running please send in the number, access times and any special features you may have.

Here are a couple to start with.

BATH ATARI B.B.S.

Number	0225 23276 (ringback)
Access times	2100 - 0800 weekdays
	2100 - Noon weekends
Sysop	Mark Templeman

Send s.a.e. for information sheet.

SCOTTISH ATARI B.B.S.

Number	0698 884804
Access times	24 hours every day
Sysop	Nick Rosser

The first bulletin board in Scotland.

AUTOCAR continued from page 49

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HF 8300 IF M=Q1 AND MO(I)<MI AND MP(I+Q1)
   >MI THEN GOSUB 8340:GOTO 8000
ZC 8310 IF M=Q2 AND MI<MP((I=Q1)) THEN GO
   SUB 8340:GOTO 8000
YT 8320 IF M=Q1 AND MI<MP((I=Q1)) THEN GO
   SUB 8340:GOTO 8000
MU 8330 NEXT I:GOTO 8000
NA 8340 FOR LX=N TO I+Q1 STEP -Q1
TT 8350 IF M=Q2 THEN DATEP$(6*(LX+Q1)-5,6
   *(LX+Q1))=DATEP$(6*LX-5,6*LX):MP(LX+Q1
   )=MP(LX):GP(LX+Q1)=GP(LX):PP(LX+Q1)=PP
QS 8360 IF M=Q1 THEN DATEO$(6*(LX+Q1)-5,6
   *(LX+Q1))=DATEO$(6*LX-5,6*LX)
IS 8365 IF M=Q1 THEN MO(LX+Q1)=MO(LX):P2(
   LX+Q1)=P2(LX):PO(LX+Q1)=PO(LX)
VU 8370 NEXT LX
TN 8380 IF M=Q2 THEN DATEP$(6*(I+Q1)-5,6*
   (I+Q1))=ENT$:MP(I+Q1)=MI:GP(I+Q1)=G:PP
   (I+Q1)=P
MM 8390 IF M=Q1 THEN DATEO$(6*(I+Q1)-5,6*
   (I+Q1))=ENT$:MO(I+Q1)=MI:P2(I+Q1)=G:PO
   (I+Q1)=P
AO 8400 RETURN
IN 8500 FOR I=Q1 TO F
GM 8510 IF M=Q2 THEN MP(I)=Q0:GP(I)=Q0:PP
   (I)=Q0
GD 8520 IF M=Q1 THEN MO(I)=Q0:P2(I)=Q0:PO
   (I)=Q0
RH 8540 NEXT I:IF M=Q2 THEN DATEP$(Q1)="
   ":DATEP$(1200)=" ":DATEP$(2)=DATEP$
NH 8550 IF M=Q1 THEN DATEO$(Q1)=" ":DATEO
   $(1200)=" ":DATEO$(2)=DATEO$
BI 8560 RETURN
BK 9000 TRAP 40000:GRAPHICS Q2+16:POSITIO
   N 6,4:? #6;"printer":POSITION 7,6:? #6
   ;"error"
DO 9010 FOR A2=Q1 TO 500:NEXT A2:RETURN
QH 20000 RESTORE 20010:FOR I=Q664 TO 1755
   :READ A:POKE I,A:NEXT I:RETURN
OK 20010 DATA 104,104,133,204,104,133
QM 20020 DATA 203,104,133,206,104,133
TG 20030 DATA 205,104,141,222,6,104
MB 20040 DATA 141,221,6,169,1,133
YD 20050 DATA 212,169,0,133,213,160
DA 20060 DATA 255,200,177,203,209,205
XS 20070 DATA 240,40,24,165,203,105
XT 20080 DATA 1,133,203,165,204,105
QF 20090 DATA 0,133,204,24,165,212
WN 20100 DATA 105,1,133,212,165,213
SB 20110 DATA 105,0,133,213,205,222
EF 20120 DATA 6,208,216,165,212,205
PT 20130 DATA 221,6,208,209,240,7
DT 20140 DATA 152,197,207,208,204,240
ZZ 20150 DATA 6,169,0,133,212,133,213,96
```

□

A message from ENGLISH SOFTWARE™

to all owners of

ATARI, COMMODORE 64, BBC B, ACORN ELECTRON and AMSTRAD Computers...



Software companies grow on trees ... at least that's the way it seems from the number of new companies springing up every week!

ENGLISH SOFTWARE was launched three years ago with a smashing little game for Atari Computers called **AIRSTRIKE 1**, which quickly became one of the most popular U.K. programmed games for the Atari.

Then, as now, Atari Computers were amongst the most advanced on the planet, but they were a **TRIFLE expensive!** But we knew that prices would come down, and that more people people would soon appreciate the great range of Atari software produced by **ENGLISH SOFTWARE.** But Atari owners **used** to be a funny lot, being heard to utter such gems as:

"It can't be any cop, if it costs less than £20"

Honestly, that's what they used to say! Anyway, in the face of this rather strange attitude, we went ahead and committed the ultimate sin:

ATARI GAMES AT £9.95!

We expected some slight resistance to these prices from Atari owners who only equated high quality with high prices, but we were wrong: Everybody thought the prices were great, **and** the games too!



We even produced the fantastic **ATARI CASSETTE ENHANCER** at £7.95, a superb utility program for **BASIC** programmers.

So now, for those of you who might have missed out on **all** our excellent Atari titles, we are releasing something very, very special:

ATARI SMASH HITS Volumes 1, 2 and 3 from **ENGLISH SOFTWARE.**

Five great games on one cassette for only £14.95, or on disk at £17.95!



Each cassette features our top-rated **JET-BOOT JACK** plus four other popular titles. So now you have no excuse to miss out on the best range of U.K. produced Atari 400/800/600XL/800XL software for 32K machines. If your dealer does not yet have them in stock, ask him to order them from his nearest Atari wholesaler. It will be the best Atari buy **YOU** will make all year!

We have also just released **COLOSSUS CHESS 3.0,** the best chess program available anywhere for Atari 400/800/600XL/800XL computers with 48K. Very powerful, with lots of excellent features.

For our good friends with other home computers, our programmers are busy producing original games for you as well. They are all illustrated on this page. **HENRY'S HOUSE** on the Commodore 64, and **JET-BOOT JACK** on the Electron are now available at selected branches of **W.H. SMITH.**

Selected English Software titles are available at: HARRODS and selected branches of: **LASKY'S, BOOTS, GRANADA COMPUTER STORES, CO-OP STORES, THE SILICA SHOP** Mail Order and Retail and all good software stores.

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